



Givaudan Roure Corporation

Remedial Action Report for
Sewer Decommissioning
Clifton, New Jersey

February 2000

22329.00.01

Environmental Resources Management
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ERM®

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EXECUTIVE SUMMARY

Givaudan Roure ("Givaudan") has completed extensive remedial activity at their property located at 125 Delawanna Avenue in Clifton, New Jersey. The remedial activity was completed during the plant demolition (1998-1999), to comply with a contractual obligation made with a buyer, Reckson-Morris Operating Partnership, LLP (Reckson-Morris). In the process of excavating the sewers and related features, Givaudan removed a significant amount of soils that contained various compounds in exceedance of applicable New Jersey Department of Environmental Protection (NJDEP) criteria. This document entitled "Remedial Action Report for Sewer Decommissioning (RARSD)" describes the activities and the findings of the completed work scope.

Over 11,000 lineal feet of chemical sewer and storm sewer line, five underground storage tanks, four cesspools, miscellaneous features such as manholes, catch basins, and 15,600 tons of impacted soils were removed from the property to approved off-site disposal facilities. In addition, the stormwater retention pond was taken out of service and underlying soils were removed, and 2,558 tons of asphalt from paved areas in the plant were removed and sent off site for disposal. Soils not suitable for reuse were sent off site for recycling. Concrete from the demolished buildings and various storage pads were crushed, sampled, and reused on site as backfill, and for rough grading of the property.

Post-excavation soil samples were collected in accordance with New Jersey Technical Regulations for Site Investigation, 1997, along the sidewall and bottom of the excavations. Additionally, stockpiled soils, and stockpiled crushed concrete, were sampled and evaluated for reuse in accordance with reuse criteria established with the NJDEP. All materials reused on-site were sampled and determined to be suitable for on-site reuse.

Many areas were excavated until data indicated no exceedance of either the more stringent of the Impact to Ground Water Soil Cleanup Criteria (IGWCSC) and/or the Unrestricted Use Soil Cleanup Criteria (RDCSCC). Not all soils with exceedances were removed, and across the property there remain in place soils that exceed one or more of the applicable NJDEP soil standards. These areas however will be incorporated within a Deed Notice that will be submitted for the project as part of a separate deliverable.

In summary, Givaudan has proactively remediated a substantial portion of the property through active removal, and has prepared it for beneficial reuse.

Section 1

Givaudan Roure Corporation (Givaudan Roure) has prepared the following *Remedial Action Report for Sewer Decommissioning (RARSD)* at Givaudan Roure's 125 Delawanna Avenue, Clifton, New Jersey plant (Facility).

In August 1998, Givaudan Roure ceased production and closed the Facility with the intent of demolishing the buildings and divesting the property. On 8 March 1999, Givaudan Roure executed an Agreement of Sale (Agreement) with Reckson Morris Operating Partnership, LLP (Reckson Morris) for the purpose of transferring ownership of the Facility from Givaudan Roure to Reckson Morris. The Agreement specified removal of certain sewer lines at the Facility.

Three sewer systems existed at the Facility, including chemical (old and new), sanitary, and storm sewers. Givaudan Roure proactively decided to excavate the sewers to identify and remove potential source areas of contamination and minimize future liabilities during construction and redevelopment. Givaudan Roure's primary objective was to excavate as much of the system as possible, given any physical constraints that may exist on the Facility.

Excavation of the sewers started in August 1998 and was completed in April 1999. A total of 11,251 feet of sewer was removed which included 5,751 feet of old chemical sewer, 2,115 feet of new chemical sewer, and 3,385 feet of stormwater sewer. In addition to the sewer systems, the stormwater retention pond was removed, as were miscellaneous features such as manholes, catch basins, cesspools, previously undiscovered underground storage tanks (USTs) and septic tanks. Portions of sewer line not excavated were investigated following the NJDEP Technical Requirements for Site Remediation (Technical Requirements) using soil borings to determine potential impacts along these lines.

The purpose of this report is to provide the NJDEP a detailed summary of the remedial activities, including a discussion of methods, soil management, results and observations, and conclusions.

1.1

REMEDIAL ACTION OBJECTIVES

To meet the closure and property transfer objectives as stated above, Givaudan Roure developed the following remedial action objectives for the decommissioning of the sewer systems:

- Remove the old chemical, new chemical, and stormwater underground sewer lines, including any other encountered subsurface features identified to be historical potential source areas.
- Excavate and treat, or recycle soils impacted by the historical operation of the sewer systems.
- Backfill and compact the excavations appropriately in consideration of the future usage of the property.

This report documents the soil remediation activities performed during sewer excavation and decommissioning at the Facility. The following Sections provide an explanation of how the remedial action objectives were satisfied by the completed remedial action for soil.

1.2

REPORT CONTENT

This report is divided into eight sections:

- Section 1, Introduction, provides an Introduction and Summary of Objectives;
- Section 2, Background, provides a discussion of the Background of the Facility;
- Section 3, Project Work Scope, provides a summary of the Scope of Work for the sewer excavation/soil remediation activities.
- Section 4, Supplemental Sewer Investigation Methods, provides a description of Supplemental Sewer Investigation Methods. Included in this section are soil boring installation, sampling, and abandonment.
- Section 5, Remedial Action and Investigation Results, provides a summary of Remedial Action/Investigation Results;
- Section 6, Conclusion, provides a List of Findings and Conclusions derived from the sewer removal and soil remediation activities.
- Section 7, References, is a list of References.
- Section 8, Certifications, provides Certification Forms.

Figure 1-2
Facility Prior to Demolition
Givaudan Roure Corporation
Clifton, New Jersey

This detailed site plan illustrates the layout of the Givaudan Roure Corporation facility in Clifton, New Jersey, before its demolition. The plan features a central cluster of buildings, including a large '30s Pad (Building 35 Area)' and several 'Pods' (42-75, 50, 60, 80). Numerous other buildings are labeled with numbers such as 84, 89, 200, 92, 65, 168, 68, 78, 98, 94, 93, 95, 91, 10, 85, 99, and 90. Dashed lines delineate 'Former Building 25 Area', 'Former Building 72 Area', and 'Former Building 50 Area'. A prominent diagonal road or railway line runs through the left side of the site. The right side shows a large rectangular area with a grid of smaller building footprints. A legend in the bottom left corner defines the symbols for 'Property Line' (solid line), 'Building Footprint' (solid outline), and 'Unpaved Areas' (dashed outline). A scale bar at the bottom left indicates distances up to 160 feet, and a north arrow points towards the top of the page.

Legend:

- Property Line
- Building Footprint
- Unpaved Areas

Scale in Feet

Section 2

2.0 BACKGROUND

2.1 SITE DESCRIPTION

2.1.1 Site Location

The Facility, located at 125 Delawanna Avenue in Clifton, Passaic County, New Jersey (Figure 2-1) is owned by Givaudan Roure Corporation. It is approximately 31 acres and was occupied by a fragrance manufacturing facility until June 1998 when active production ceased, and former production building demolition began.

The property is bordered on the northeast by Delawanna Avenue, to the west by New Jersey Transit commuter and freight lines, to the southeast by a small medium-density housing community located on a hill overlooking the site, to the south by small businesses located on River Road, and to the southwest by River Road. The site topography slopes gently from north to south and, in general, the elevation of the perimeter of the property ranges from 1 to 25 feet higher in elevation than the rest of the site. A map depicting buildings and other site features prior to demolition activities is represented in Figure 2-2.

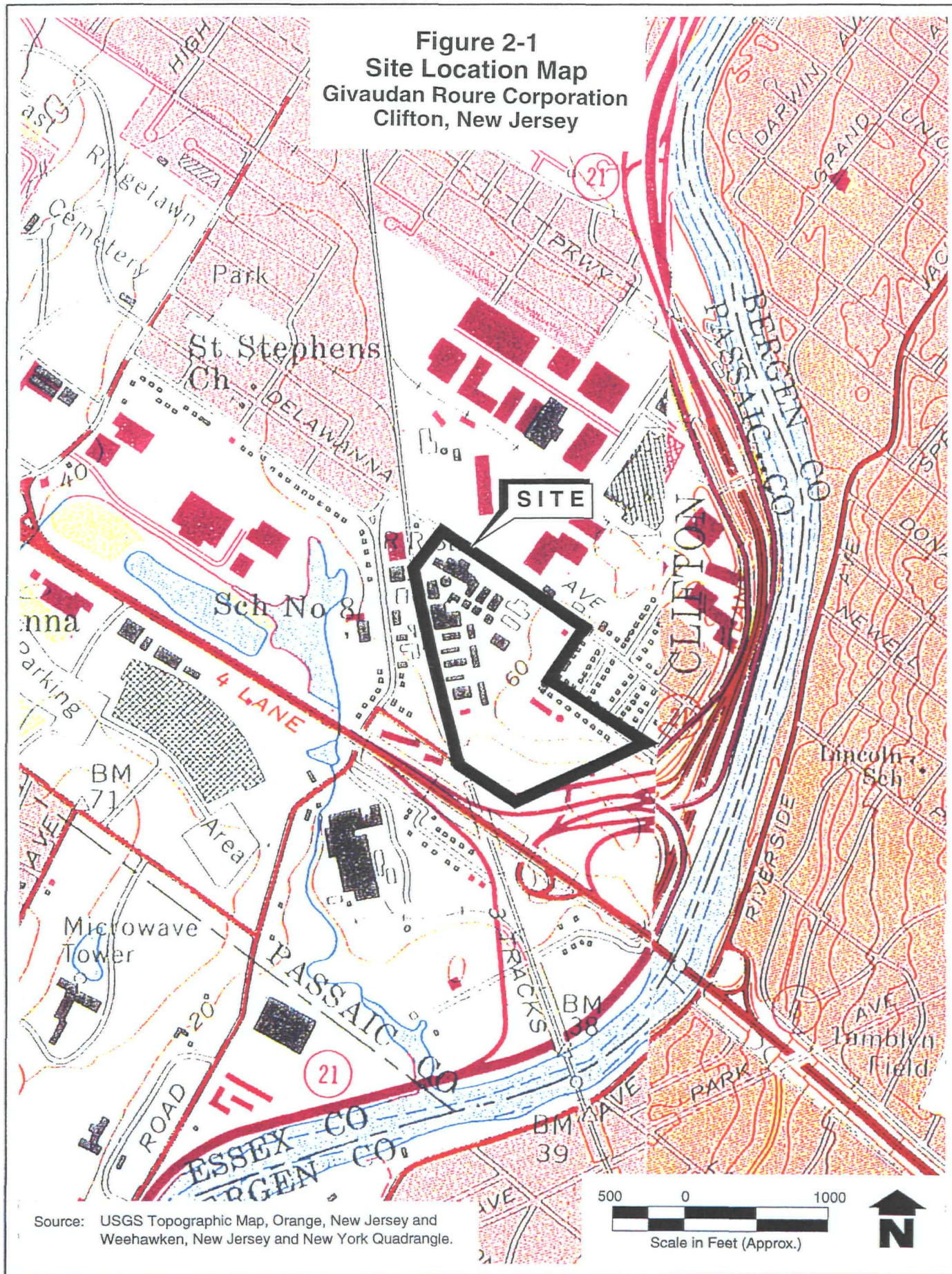
Located across the New Jersey Transit rail line to the west are buildings occupied by light industrial/commercial businesses. The Passaic River, which forms the boundary of Passaic and Bergen Counties, is approximately 0.3 miles to the southeast of the property and is tidally influenced at this location.

2.1.2 Site History

The site was an active industrial facility from 1905 until its closure in 1998. Most of the original site was owned by Antoine Chiris before its purchase by Givaudan Corporation (predecessor to Givaudan Roure) in 1913. Two other portions of the site along the southwest side of the property were owned by National Anode Corporation and Capes-Viscose Corporation. These parcels were purchased by Givaudan Corporation in 1926 and 1931, respectively (Figure 2-3).

A succession of industries has occupied the property across the railroad tracks adjacent to the west side of the site, including a Minwax Corporation plant. During its operation, Minwax used a variety of organic and inorganic chemicals, however the waste handling and

Figure 2-1
Site Location Map
 Givaudan Roure Corporation
 Clifton, New Jersey



Source: USGS Topographic Map, Orange, New Jersey and Weehawken, New Jersey and New York Quadrangle.

500 0 1000
 Scale in Feet (Approx.)



Figure 2-2
Site Plan
Glvaudan Roure Corporation
Clifton, New Jersey

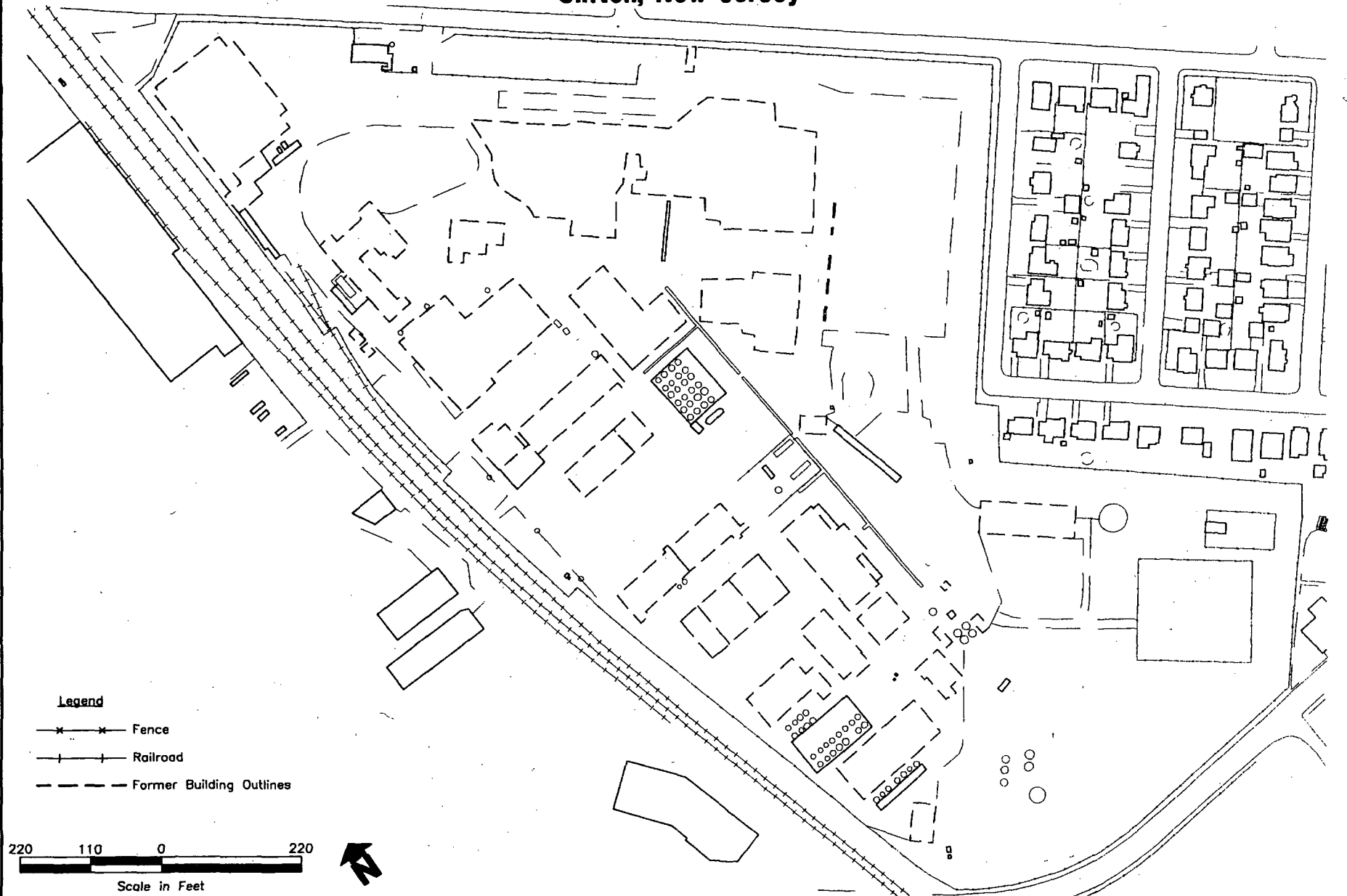
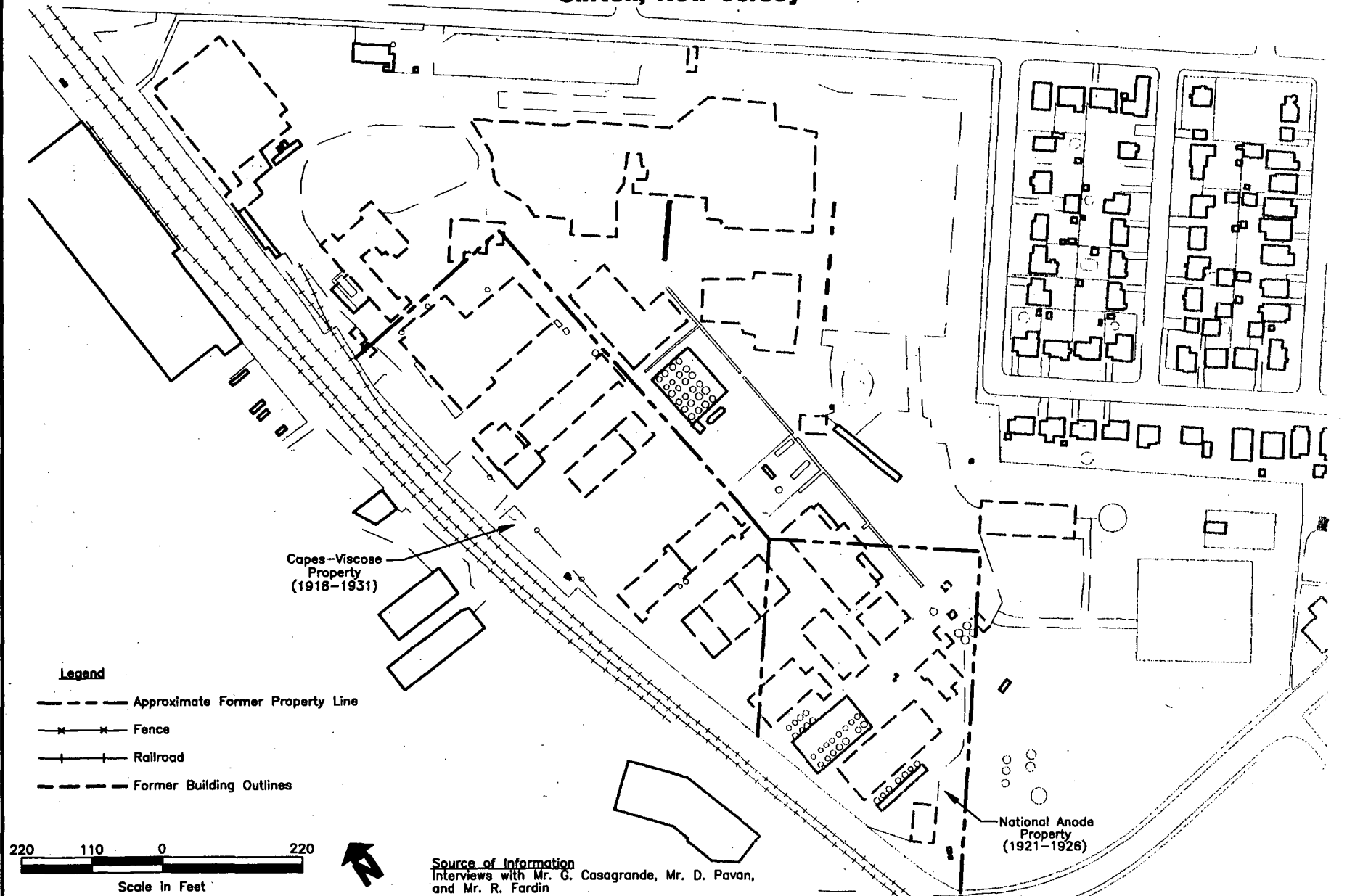


Figure 2-3
Site Development Map
Givaudan Roure Corporation
Clifton, New Jersey



disposal practices of the operation are unknown. The Minwax plant was closed in 1978 after an explosion and fire at the facility.

The first water supply well was drilled on the site in 1917. Six additional supply wells were drilled on the site by Givaudan Roure and other property owners between 1917 and 1948. From approximately 1950 to 1987 ground water was continuously extracted at the site for use as non-contact cooling water. Approximately 1 million gallons per week were extracted, utilized, and discharged to the facilities of the Passaic Valley Sewerage Commission, a publicly owned treatment works. Subsequent to 1987, the supply wells were decommissioned, and properly abandoned.

Continuous renovations occurred up until the 1998 closure as part of routine improvement and modernization programs. Environmentally related improvements included obtaining over 400 permits from the Department for air vents, which controlled process emissions. The original chemical sewer system was replaced in April 1985 with a new state-of-the-art system equipped with secondary containment. The new chemical sewer system consisted of a series of pipes constructed within concrete trenches. Gratings over the trenches allowed for physical inspection for detection of any potential loss of primary or secondary containment. A wastewater diversion system responsible for effluent water quality was also in operation for over 20 years prior to closure.

In November 1990, a steam stripper was installed for toluene distillation to comply with OCPSF regulations. In compliance with the Toxic Catastrophe Prevention Act (TCPA), a facility for storing and handling bromine was constructed in 1990. Finally, between 1993 and 1994, 52 underground storage tanks were removed and/or decommissioned.

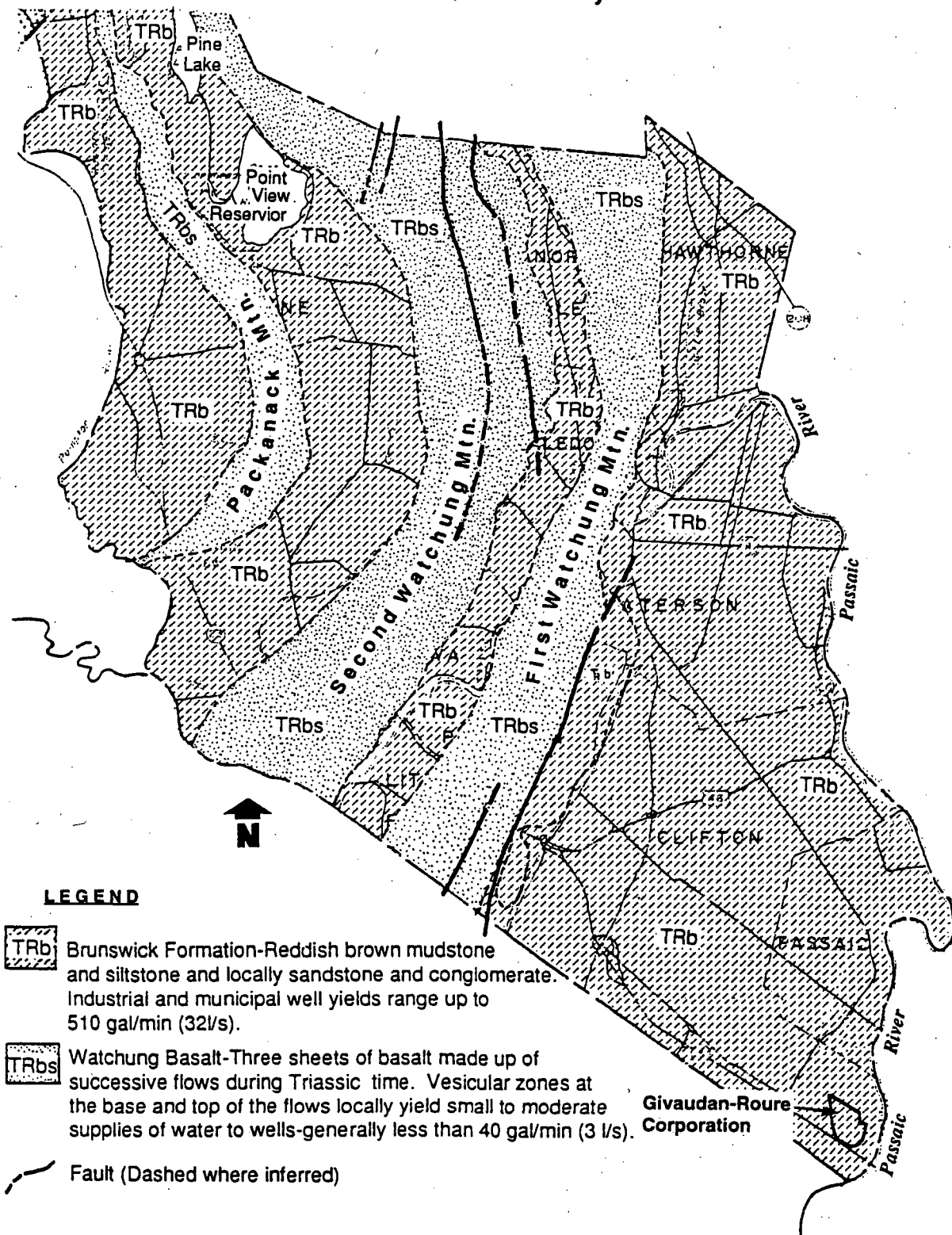
As stated above, the plant was closed at the end of August 1998, at which time production operations ceased. Since operations ceased, the Facility has been demolished and the property is in the process of being divested.

2.2 REGIONAL GEOLOGY AND HYDROGEOLOGY

2.2.1 Regional Geology

The site is primarily underlain by the Brunswick Formation, the youngest lithologic unit of the Late Triassic age Newark Group (Table 2-1 and Figure 2-4) (Carswell and Rooney, 1976). The Newark group is contained in a southwest trending basin that reaches from Rockland County, New York, to northeast Lancaster County, Pennsylvania. The Newark Basin is the largest lobe of three valleys that run in a sinuous belt for more than

Figure 2-4
Regional Geological Map
Givaudan Rouse Corporation
Clifton, New Jersey



LEGEND



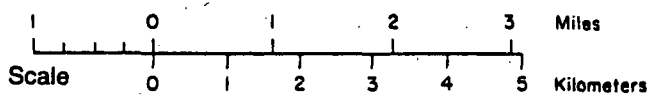
TRb Brunswick Formation-Reddish brown mudstone and siltstone and locally sandstone and conglomerate. Industrial and municipal well yields range up to 510 gal/min (32 l/s).



TRbs Watchung Basalt-Three sheets of basalt made up of successive flows during Triassic time. Vesicular zones at the base and top of the flows locally yield small to moderate supplies of water to wells-generally less than 40 gal/min (3 l/s).



Fault (Dashed where inferred)



Givaudan-Rouse Corporation

Source: Carswell and Rooney, 1976.

Table 2-1
Summary of Geology and Hydrogeology of the Newark Group and
Wisconsin Age Glacial Deposits
Givaudan Roure Corporation
Clifton, New Jersey

Group	Age	Formation	Lithologic Description	Water Bearing Characteristics
Undifferentiated Glacial Deposits	Pleistocene Period-Wisconsin Stage	Un-named	Unconsolidated stratified and unstratified clay, silt, sand, and gravel ranging in thickness from 0 to 250 feet.	Poor to very poor water producing zones due to coarse grained units with a high fine grain fraction.
Newark	Late Triassic	Brunswick	Consolidated shales, sandstones, and some conglomerate ranging from several thousand to > 16,000 feet thick.	Generally poor to moderate water bearing capacity but may be extremely high in highly fractured areas.
		Lockatong	Lacustrine deposits of detrital cycles of mudstone and chemical cycles on anticline and argillite ranging from 500 to 3750 feet thick.	Unknown in study area.
		Stockton	Well sorted arkose and subordinate conglomerate and mudstone approximately 1000 feet thick near the site.	Unknown in study area.

1,000 miles from Nova Scotia to South Carolina. These rift valleys formed as a result of normal faulting caused by extensional stress along the Atlantic Coast (King, 1977).

The Brunswick Formation consists of a thick sequence of interbedded brown, reddish brown, and gray shale, sandy shale, sandstone, and conglomerate. The thickness of the Brunswick Formation is estimated to range from greater than 16,000 feet in the southwest portion of the basin to several thousand feet in other areas. The lithology of the Brunswick Formation consists primarily of shale and siltstone, but in the northern portion of the basin, it grades into more coarse-grained sandstones and becomes conglomeratic in some areas (Nichols, 1968). The lenticular strata of the formation generally strike north 30 degrees east and dip northwest between 5 and 25 degrees to the northwest.

2.2.2

Regional Hydrogeology

Two general aquifer systems are present in the region of the site. The unconfined or water table aquifer exists in the unconsolidated sediments of Pleistocene Age related to the Wisconsin Stage glaciation. Confining and semi-confining conditions exist in localized areas where coarse-grained lenses are overlain by lake deposits of silt or clay. The consolidated Triassic Age strata of the Brunswick Formation form the bedrock aquifer. The Brunswick Formation is primarily a confined aquifer where covered by unconsolidated glacial deposits (Nichols, 1968). It is composed of a sequence of interbedded relatively thin water bearing units confined by relatively thick aquitards (Michalski, 1990). Aquifer characteristics can vary greatly over distances depending upon the degree of weathering and/or fracturing of the respective water bearing unit.

As a result of the aquifer conditions described above, ground water flow in the Brunswick Formation is primarily along the strike of bedding (Vecchioli, et al., 1969). High angle vertical joint sets have been observed in the Brunswick Formation which contribute to vertical communication between water bearing zones but do not constitute a large impact on preferential ground water flow (Michalski, 1990). Vertical communication between separate water bearing units is primarily determined by differences in hydraulic head and the degree of fracturing of the intermediate aquitard.

The hydrogeologic properties of the unconsolidated sediments of the region are highly variable, depending upon the amount of fine-grained material in each aquifer. The depth to water in the region ranges from 30 to 40 feet below grade, but may be significantly deeper in areas where long-term pumping is in effect (Nichols, 1968).

An understanding of the site geology and hydrogeology was derived from a comprehensive review of subsurface and hydrogeologic data collected during the Phase I, Phase II, Phase III, and recent subsurface investigations. The data used in the interpretation of the site geology and hydrogeology was collected from excavations, soil borings, monitoring wells, and borehole geophysics. For the purpose of this report a brief summary of the site geology and hydrogeology is provided. For reference, investigation reports entitled *Revised Draft Remedial Investigation Report* (ERM, 1991), *Remedial Investigation Report for Soils* (ERM, October 1997) *Phase II Remedial Investigation for Ground Water* (ERM, March 1997), and *Phase III Remedial Investigation for Ground Water* (ERM, July 1998) provide a more comprehensive discussion of the subsurface and hydrogeologic conditions.

2.3.1

Site Geology

Two geologic units (overburden and bedrock) were encountered during the comprehensive subsurface activities to date. The unconsolidated overburden at the site consists of stratified sand, gravel, silt, and some clay (Figure 2-5).

The overburden at the site ranges in thickness from approximately 80 feet at the northwestern corner of the site (MW-3DR) to approximately 154 feet at the eastern corner of the site (MW-10D.) The bedrock topography slopes down from the north to the south to a trough oriented along a northeast trending axis with the deepest portion running through monitoring well MW-10D. South of the site perimeter, the bedrock topography slopes upward towards the Passaic River.

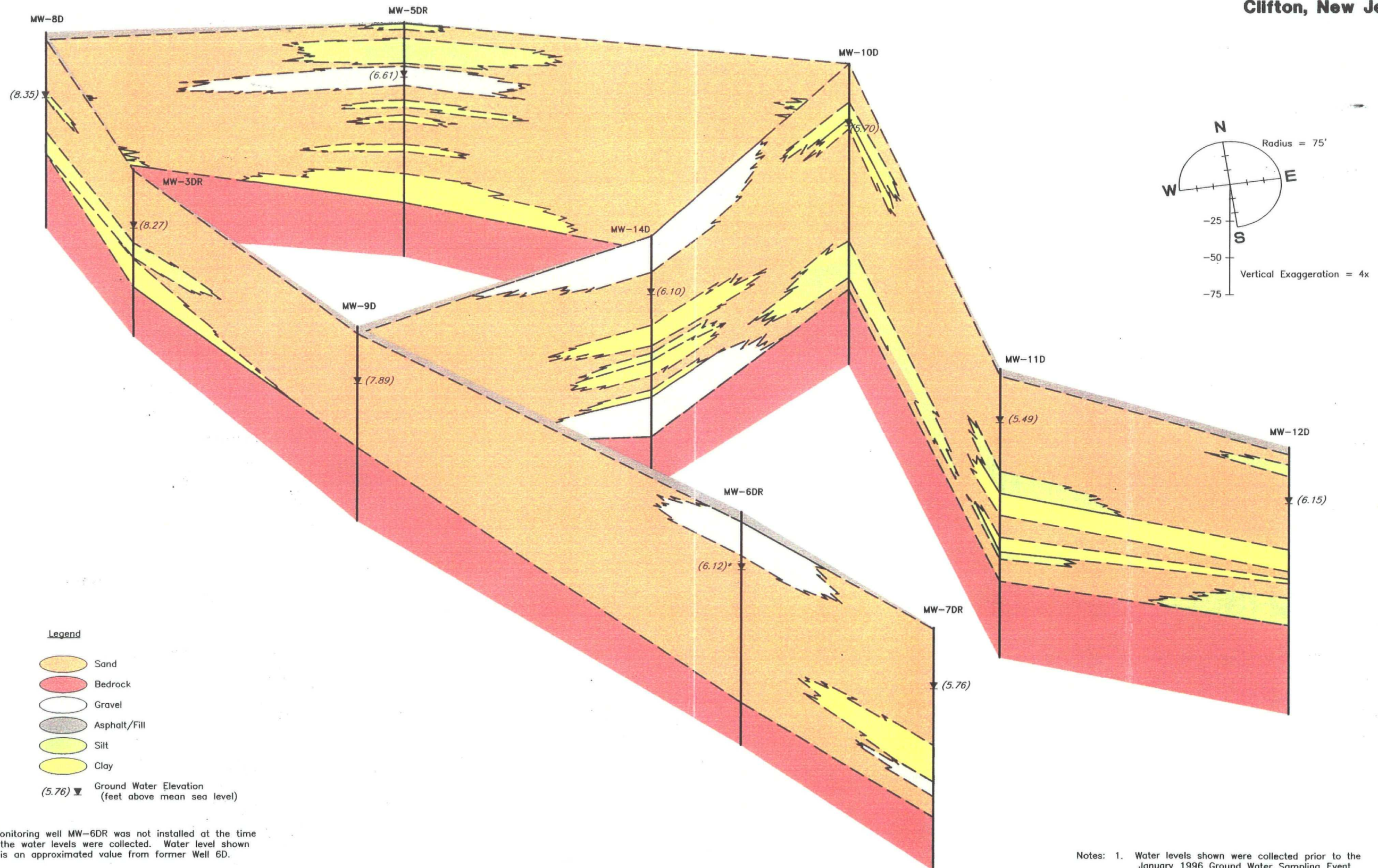
Grain size generally decreases with depth across the site. Surficial sediments and shallow subsurface sediments (approximately 0 to 25 feet below grade) are typically composed of varying textures of sand and gravel. A fining downward sequence consisting of fine-grained sand to silt is typically encountered as depth approaches the water table. Below the water table, an increase in the frequency of interbedded clay and silt layers is generally observed.

2.3.2

Site Hydrogeology

Two aquifers are being monitored by the site well network: the shallow and intermediate wells monitor the unconsolidated overburden aquifer while the deep wells monitor the shallow bedrock aquifer.

Figure 2-5
Site Geology Fence Diagram
Givaudan Roure Corporation
Clifton, New Jersey



2.3.2.1

Overburden Aquifer

Ground water in the shallow overburden aquifer occurs under water table conditions. Until very recently, most of the site was covered by asphalt and buildings. Stormwater and surface runoff from the plant discharged to the unlined Stormwater Retention Pond (Pond) near former Building 50. Historically, the Pond always contained some quantity of water. The nature of the Pond was confirmed during the recent excavation of sediments from the bottom of the pond during its closure.

To control runoff during rain events, overland flow was diverted into the retention pond increasing the amount of water in the Pond. The Pond thus served as a point of continuous recharge for the shallow aquifer at the site. Evidence of the recharge from the Pond is provided by the measured shallow ground water elevations and unusually shallow water levels observed in soil borings conducted in its vicinity during previous investigations.

A ground water divide was historically observed in the overburden aquifer along a northwest to southeast trending axis through the former Building 50 area towards Building 9. The mounding effect from the Pond caused ground water in the shallow aquifer to flow radially away from the Pond, exaggerating the ground water divide by influencing the ground water flow at the northwestern portion of the site.

The axis of the interpreted historical ground water divide is consistent with the location of stormwater lines in this area. Thus, potential leaks from the stormwater line feeding the Pond from the northwest may have enhanced the mounding effect and caused it to become elongated along a northwest-southeast trending axis. Since closing the pond, multiple water level rounds have been collected to further the historical understanding of its influence on ground water flow in the shallow aquifer and to refine the interpretation of the current day hydrogeologic conditions.

2.3.2.2

Bedrock Aquifer

Ground water elevations in the bedrock aquifer decrease from northwest to southeast beneath the site. The interpreted ground water flow direction in the bedrock aquifer fluctuates locally. However, the general southeastward flow direction in the shallow bedrock aquifer has remained consistent since 1988. Based on measured water levels, the influence of the recharge from the storm Pond to the shallow system is not readily apparent in the bedrock aquifer.

Ground water flow in the Passaic Formation is primarily along bedding plane fractures. Due to the nature of these fractures, they often create a strike-parallel preferential flow direction. Evidence of the anisotropy of the bedrock aquifer is provided by data collected from pump tests performed in June 1988.

The pump tests were conducted on existing production wells to determine aquifer characteristics and the respective capture zones of the wells. Historically, when the wells were in operation, the plant normally extracted greater than 1 million gallons of water per week for use in production activities. The elongated cone of depression that was observed around former production well 6D illustrated the effect of the anisotropy of the aquifer in the form of a cone of depression elongated along a strike-parallel axis.

Transmissivity values calculated from the 1988 pump test range from 1.66×10^{-4} gallons per day/foot in well 5D to 5.56×10^{-4} gallons per day/foot in well 9D. Storativity values range from 7.2×10^{-4} in well 12D to 8.5×10^{-3} in well 9D.

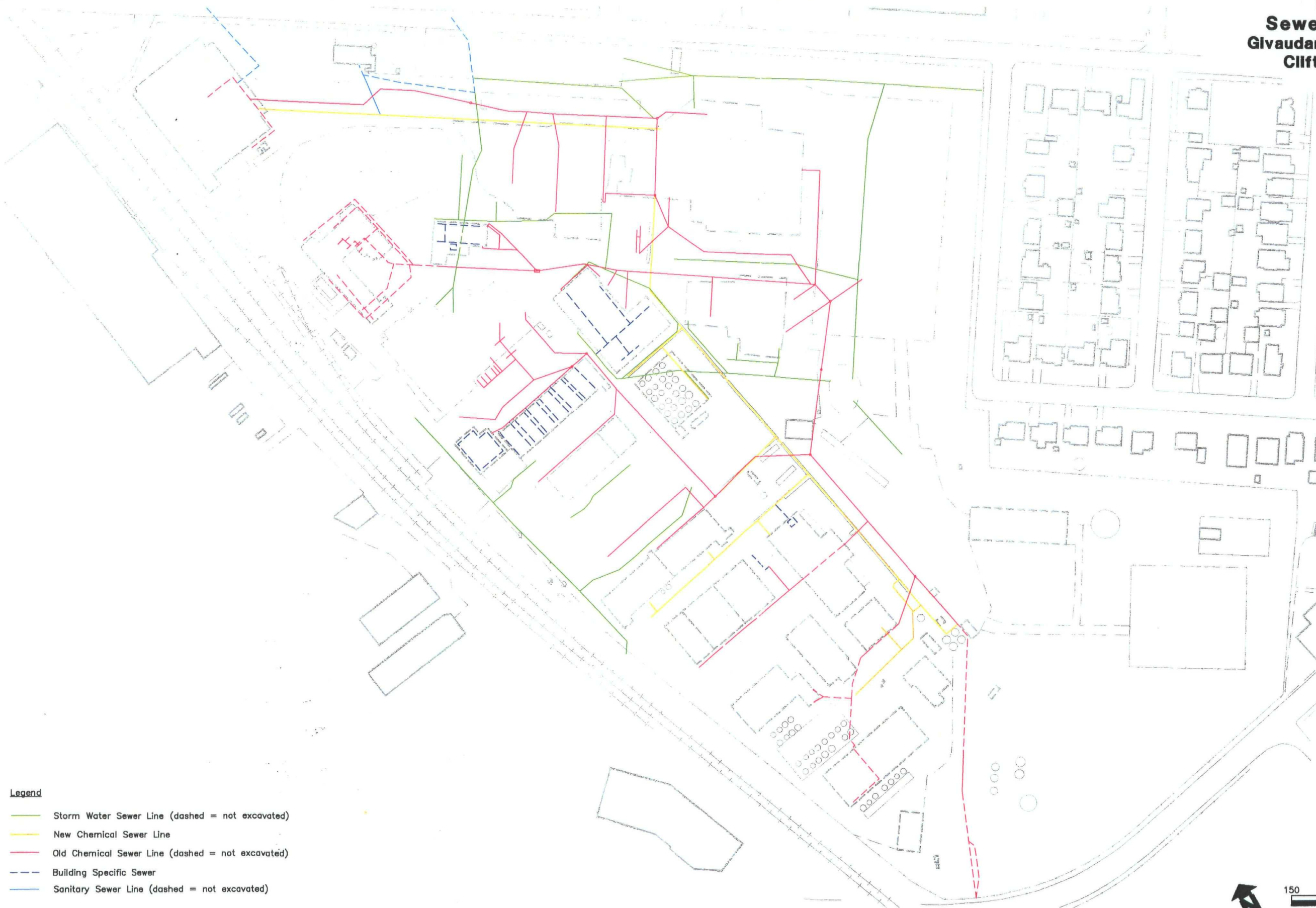
2.4

PREVIOUS CHEMICAL SEWER INVESTIGATIONS

The locations of the sewer lines prior to soil remediation activities are shown on Figure 2-6. The chemical sewer system at the Facility was installed in two stages. In approximately the 1960's, the original chemical sewer system was installed by Givaudan Corporation to collect and discharge process wastewater. In the mid-1980's, portions of the original chemical sewer were abandoned and replaced, or retrofitted with the new chemical sewer consisting of secondary contained fiberglass reinforced plastic pipe. In addition, as manufacturing operations at the Facility were altered or shut down, portions of the old chemical sewer were abandoned and not replaced.

There have been two previous investigations of the existing chemical sewer systems. In July 1983, CFM Incorporated (CFM), of Whippany, New Jersey conducted a remote, closed circuit television survey of the old chemical sewer system to identify potential areas of exfiltration (Figure 2-7). An internal inspection was completed of the chemical sewer and most of the branches. At several locations, the survey was blocked due to collapsed pipe, blockages or other factors. As reported by CFM, approximately 5,134 feet of sewer were surveyed, representing approximately 85 percent of the old chemical sewer system. CFM concluded from the survey that approximately 93 percent of the sewers exhibited some type of defect, while over 25 percent were found to be in

Figure 2-6
Sewer Location Map
Glvaudan Roure Corporation
Clifton, New Jersey



Legend

- Storm Water Sewer Line (dashed = not excavated)
- New Chemical Sewer Line
- Old Chemical Sewer Line (dashed = not excavated)
- - - Building Specific Sewer
- Sanitary Sewer Line (dashed = not excavated)

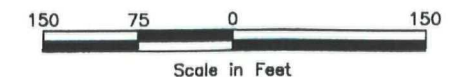
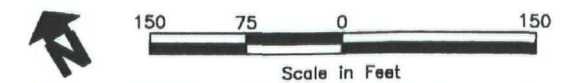


Figure 2-7
Probable Exfiltration Points
Glvaudan Roure Corporation
Clifton, New Jersey



- Legend**
- Storm Water Sewer Line (dashed = not excavated)
 - New Chemical Sewer Line
 - Old Chemical Sewer Line (dashed = not excavated)
 - ////// Probable Exfiltration Points



poor condition as either severely eroded or broken pipe. The results of the survey, presented in a report titled *Chemical Sewer Investigation* (CFM, September 1983), were used in part to prepare the scope of work completed during the Phase II Soil Investigation (ERM, 1995). A copy of the September 1983 report prepared by CFM is included in Appendix A.

In 1998, National Water Main Cleaning Co., of Newark, New Jersey conducted a remote television survey of portions of the new chemical sewer to identify potential areas of exfiltration. The camera survey was completed as a preliminary task prior to excavating the new chemical sewer to determine the potential for impacts to soil. Approximately 853 feet of new chemical sewer were surveyed. The results of the survey were presented in a summary report (and accompanying videotape) prepared by National Water Main Cleaning Co. dated 26 October 1998.

Under section 7:26E-3.9(d) of the Technical Requirements for Site Remediation (Technical Requirements), video inspection of a collection system may be used to document the integrity of the system piping. The new chemical sewer was installed with secondary containment and had no history of releases. Thus, consistent with the Technical Requirements, further investigation of the new chemical sewer was not required prior to excavation. Based on the results of the survey, the Technical Requirements and the anticipated integrity of the new chemical sewer system, it was decided that no post-excavation samples would be collected during new chemical sewer removal unless field observations suggested a potential release. A copy of the National Water Main Cleaning Co. report is included as Appendix B.

Section 3

Based on the cumulative remedial investigation findings to date which identified the sewer system as a historical source for potential impacts to soil and ground water, and the remedial action objectives of the soil remediation, the following project scope of work was performed to prepare the property for divestiture.

SUBCONTRACTORS

ERM-EnviroClean (EnviroClean), the construction and operations division of ERM, served as the primary subcontractor for the soil remediation activities. EnviroClean provided operators, laborers, and equipment for the excavation activities related to sewer removal. In addition, the EnviroClean field operations manager and health and safety officer served as liaisons and performed general sight coordination and health and safety for the additional companies on-site under direct contract to Givaudan Roure. Provided below is a list of second and third tier subcontractors utilized by EnviroClean during the soil remediation activities. A brief description of their respective responsibilities is included.

- 1) Hertz Equipment Rental
P.O. Box 26390, Oklahoma City, Oklahoma
(Local supplier: South Hackensack, New Jersey, Branch #9175)
Supplied and maintained heavy equipment necessary for excavation and on-site transportation of excavated soils, backfill, and segregated materials.
- 2) Nydam Enterprises Incorporated
396 Rutherford Blvd., Clifton, New Jersey
Supplied and delivered clean fill to the site for use as backfill.
- 3) Environmental Waste Minimization Incorporated (EWMI)
P.O. Box 158, Emmaus, Pennsylvania
Served as the primary waste characterization, transportation, and disposal contractor for soil and water generated from the remedial action.

- 4) Horwith Trucking
P.O. Box 7, Route 329, Northampton, Pennsylvania
One of two transportation subcontractors to EWMI.
- 5) Braen Stone Industries, Inc.
P.O. Box 8310 Haldon, New Jersey
Secondary supplier of backfill subcontracted by EWMI.
- 6) Reifsneider Transportation Incorporated
223 Fellowship Road, P.O. Box 756, Eagle, Pennsylvania
Provider of containment tanks and vacuum trucks used to evacuate the water from the former stormwater retention pond. Subcontracted by EWMI.

3.2

SEWER AND SAMPLE DESIGNATION NOMENCLATURE

Prior to initiating excavation activities, a naming system was created for the sewer system for identification and sample tracking purposes. In general, the selected naming procedure was to represent each sample by four characters separated by hyphens. An explanation of the logic and step by step determination of how samples were designated in the field is provided below.

3.2.1

Old Chemical Sewer

The naming system that was developed for the old chemical sewers assigned a letter, or multiple letters, to represent the type of line and each length of sewer line to be excavated (Table 3-1 and Figure 3-1). Typically, a main line was designated as a letter, with laterals off of the main line named as the same letter followed by a prime (') designation. As an example, line "A" with laterals named "A' ", " A'' ", etc.

Following the letter(s), a number was used to denote the location along a given line from which a sample was collected with respect to the designated starting point. For example, a sample designation of "A-30" would represent a sample collected from the "A" line at a distance of 30 feet from the beginning of the excavation for that line.

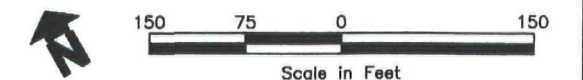
The location of the sample within the excavation was represented by a "sw" or a "b" designation, for "side wall" and "bottom" respectively. To build on the example started above, a sample named "A-30-SW" would represent a sample collected from the "A" line, a distance of 30 feet from the beginning of the excavation, collected from the excavation sidewall.

Figure 3-1
Sewer Location Map
with Designations
Glvaudan Roure Corporation
Clifton, New Jersey



Legend

- Storm Water Sewer Line (dashed = not excavated)
- New Chemical Sewer Line
- Old Chemical Sewer Line (dashed = not excavated)



where does line H finish?

In addition to the "sw" and "b" designations, a compass orientation was added to the sample name for reproducibility purposes. The letters "N", "S", "E", and "W" were used to represent north, south, east, and west, respectively. By adding this suffix, it could be determined what side of an excavation from which a sample was collected. To finalize the example sample location, "A-30-SW-N" would represent a sample collected from the "A" line, 30 feet from the beginning of the excavation, collected from the sidewall, on the northern side of the excavation.

If additional excavation was required based on the results of the initial post-excavation sample analytical results, the location from which the original sample was collected was scaled off and resampled. In these cases, a number was attached to the complete sample designation. A sample designated "A-30-SW-N2" would be a second post-excavation sample from the north sidewall of the "A" line trench, 30 feet from the beginning of the trench. If additional excavation and sampling were necessary, subsequent samples would be named "A-30-SW-N3", "A-30-SW-N4", etc.

3.2.2 *Stormwater Sewers*

The naming system that was developed for the old stormwater sewers began with "SS" to denote "stormwater sewer". Each stormwater sewer designation begins with "SS" followed by subsequent letters of the alphabet beginning with "A" ("SSA", "SSB", etc.) (Table 3-1 and Figure 3-1). The remaining four characters in the sample designation were consistent with the logic used to name the old chemical sewer post excavation sample locations. A sample designated SSA-30-B, would represent a sample collected from stormwater sewer SSA, 30 feet from the beginning of the line, taken from the base of the excavation.

3.2.3 *New Chemical Sewers*

No post excavation samples were collected during the removal of the new chemical sewers because there were no documented or visible indications of any past or present releases. The new chemical sewer was either secondarily contained with no signs of a release, or video logged to document it's integrity. These sewers are simply designated as "New Chemical Sewers" on the figures included in this report.

3.2.4 *Additional Excavation Findings*

In addition to sewers and associated features such as catch basins affiliated with the sewer system, several additional subsurface features were encountered during sewer excavation activities. A detailed

discussion of additional excavation findings is provided in Section 4. When an unanticipated finding was encountered, post excavation samples were typically designated by initials, which represented the feature. As examples, "CP" denotes "cesspools", "Tank" denotes a location in which a tank was excavated and post-excavation samples collected, and "FB" denotes samples collected from a former building foundation bottom.

Occasionally, samples were collected to evaluate unknown, uncommon looking, or potentially affected material. In these cases, arbitrary names were assigned based on the physical characteristics of the sample (Gray-1, Blue, etc.) These samples were able to be tracked separate from the required sewer line post excavation samples due to the non-conventional means in which they were named and their traffic report number.

3.2.5 *Excavated Soil Piles*

The soil excavated during the project was staged and designated one of two ways. Soil excavated from the surface to a level just above a sewer line, or feature, which was anticipated to be unimpacted was staged alongside of the excavation pending sampling and analysis. This soil was staged in 20 cubic yard piles and named by the line designation followed by a sequential pile number for that line (e.g., A''-1, A''-2, A''-3, etc.). Following data evaluation, the pile was then either used for backfill, if appropriate, or staged for transportation offsite for soil recycling.

Soil excavated from a depth equal to, and below the depth of the sewer line, or feature, which was anticipated to be potentially impacted, was staged in a designated area in piles for sampling and analysis. The potentially impacted soil piles were designated by the date of the excavation, followed by the designation of the line from which the soil was excavated (e.g., 8/14A, 8/14B'', 8/14C, etc.)

3.3 *SOIL REMEDIATION*

The following sections discuss the specific methods used during sewer removal and soil remediation.

3.3.1 *Old Chemical Sewer*

During the soil remediation activities, 5,751 feet of the existing 6,943 feet of the old chemical sewer were excavated. The remaining 1,192 feet of old chemical sewer was addressed during the Supplemental Sewer Investigation (discussed in Section 4).

Immediately before a length of sewer was excavated, the asphalt at the surface was peeled back using an excavator or backhoe. The asphalt surface layer was segregated from the soil to avoid biasing the analytical results as a result of targeted organic compounds, which are typically observed in asphalt.

Once the asphalt was removed, excavation of soil down to the depth of the pipe was excavated and staged either immediately adjacent to the excavation, or at a designated soil staging location. The vitrified clay pipe and soil to a depth of approximately six inches to one foot below the sewer was then excavated. If visual evidence of staining was encountered, the potentially impacted soil was excavated to the extent possible, prior to sampling.

Once a length of old chemical sewer was excavated to a depth of up to one foot below the depth of the sewer, and the vitrified clay and observed potentially impacted soil was removed, the excavation was measured in preparation for sampling. Sampling was then performed as discussed in Section 3.6.

3.3.2 *Stormwater Sewer*

Excavation and post excavation sampling methods for the stormwater sewers were performed consistent with the procedures discussed above for the old chemical sewers. A discussion of the materials segregation, soil staging, and sampling methodology is provided below.

3.3.3 *New Chemical Sewer*

During the excavation of the new chemical sewer, no post excavation samples were collected. Because the entire length of sewer was either secondarily contained, or video logged to document its integrity, no post excavation samples were required. During excavation, the sewer, containment and underlying soil were inspected for visual signs of potential impacts that would dictate the need to sample. No indications of a potential release were observed.

Once the surficial asphalt (if present) was removed, the concrete containment vaults and new chemical sewer line were removed. Typically, the sewer was lifted out of the containment, followed by either lifting out the containment in sections, or breaking the concrete into manageable sized slabs prior to removing it from the trench.

3.3.4 *Former Stormwater Retention Pond*

Prior to any excavation in the former stormwater retention pond (Pond), the pond was pumped dry to allow access to the accumulated sediments and underlying soil. During evacuation of the Pond, the stormwater lines feeding the Pond were excavated and capped to prevent the re-introduction of surface water into the Pond during dewatering activities. However, due to the accumulation of rainwater from significant storm events, water was evacuated from the pond three separate times. In total, approximately 135,500 gallons of water were pumped from the pond. The water was analyzed for Toxicity Characteristic Leaching Procedure (TCLP) VOCs, SVOCs, Pesticides/Polychlorinated biphenyls (PCBs), and Metals for waste characterization purposes and transported to the Berks County Wastewater Treatment Plant (Berks County, Pennsylvania) for disposal. Copies of the waste characterization analytical results and forms documenting the transportation and disposal of the water are provided in Appendix C. Once the water and saturated sediments were removed to a point that the sediments were manageable, excavation of the remaining material was started.

*NO TCDD ?
Analysis*

3.3.4.1 *Stage 1 Soil Excavation*

Beginning on 13 January 1999, excavation of bottom sediments from the Pond was started. During this initial excavation phase, the sediments and underlying soils impacted based on visual or olfactory evidence were removed. Excavated sediment/soil was stabilized in place (within the pond excavation) by mixing in certified clean kiln dust supplied by EWMI. The sediment was subsequently stockpiled and loaded directly into dump trucks for transportation to Clean Earth of New Castle, Inc., (Clean Earth) 94 Pyles Lane, New Castle, Delaware for recycling.

Approximately 6 to 7 feet of bottom sediments were removed from the north side of the Pond. The thickness of the bottom sediments observed at the south end of the Pond was approximately 4 feet. The thickness of sediments gradually increased from south to north.

3.3.4.2 *Stage 2 Soil Excavation*

Based on a comparison of the Stage I post-excavation sample analytical results to the more stringent of the Department's Soil Clean-up Criteria, additional excavation was completed. Areas in which post-excavation results detected compounds at concentrations exceeding their respective criteria were re-excavated. Post-excavation samples were then collected from the same location as the Stage I post-excavation samples.

The Stage 2 samples were designated the same as the original samples followed by the number "2" to distinguish the sample from the original (e.g., "Pond-B-7, "Pond-B-7-2"). The analysis of the Stage 2 post-excavation samples was based on the compounds detected at concentrations exceeding their respective criteria in the Stage 1 samples. For example, if a Stage 1 sample contained only VOCs at concentrations exceeding the more stringent criteria, then the Stage 2 samples were analyzed for only VOCs. This procedure remained consistent for the suite of parameters that were detected in the Stage 1 analytical results.

3.4

SEGREGATION OF MATERIALS

During excavation activities, soil and excavated materials were segregated for characterization purposes. In each area that excavations were performed, the surficial asphalt and/or concrete in the location was peeled back and segregated. Once excavation was begun, every attempt was made to segregate potentially impacted soil from potentially unimpacted soil based on field observations and the physical characteristics of the soil. The soil segregation was done to characterize soils exhibiting similar characteristics together to avoid cross contamination and to maximize the potential for on-site reuse.

In general, sewer piping was removed and segregated according to its composition. Although the piping from the new chemical sewer did not require characterization because the lines had been decontaminated prior to excavation, it was segregated for handling and disposal purposes. The vitrified clay piping from the old chemical sewer was typically found to be fragmented and not able to be segregated.

The concrete removed from the new chemical sewer secondary containment and any other excavated concrete was segregated, crushed, and sampled for potential reuse options. A discussion of the excavated concrete management is provided in Section 3.7.

3.5

SOIL AND MATERIALS STAGING

Soil and excavated materials such as concrete, asphalt, and piping were segregated as discussed above and staged in designated areas for characterization and/or handling. In general, soil, asphalt, and piping were staged in the former Building 72 area in the northeast corner of the property. This area was selected based on its size, location, and logistical concerns with traffic generated during off-site transportation events. Concrete was staged in the southeast portion of the property, east of the

former wastewater treatment facility. This location was selected in anticipation of the space needed for concrete crushing and handling.

3.6

SOIL SAMPLING FREQUENCY AND PROCEDURES

In general, samples collected for investigative or post-excavation soil quality were analyzed for the same suite of parameters. The following sections detail the sampling frequency and analysis for these samples. A discussion of the waste characterization sampling and analytical methods is provided in Section 3.7.

A summary of the samples collected during the soil remediation activities and their respective analyses is provided in Table 3-2. For each set of 20 samples, a blind duplicate, a matrix spike, and a matrix spike duplicate were collected. A trip blank (unused bottle preserved with methanol) was submitted with each cooler that contained samples designated for VOC analysis. Batch QA/QC samples analyzed by the laboratory to document instrument accuracy and precision are not included in Table 3-2.

3.6.1

Pre-Excavation/Investigative Sampling and Analysis

3.6.1.1

Sediment Characterization

Prior to dewatering, five sediment samples (PN-1, PS-1, PE-1, PW-1, and PW-2) were collected from the periphery of the Pond to evaluate what the bottom sediments may contain. The locations of the samples are shown on Figure 3-2. Due to the elevation difference between grade and the Pond sediment, samples were collected using bucket augers with 5-foot extensions to reach the target depth. Samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) plus tentatively-identified compounds (TICs) and TCL semi-volatile organic compounds (SVOCs) plus TICs by ERM-FAST, a NJDEP-certified laboratory. Samples to be analyzed for VOCs were weighed and transferred into the appropriate methanol preserved jars in the field as required by United States Environmental Protection Agency (EPA) method 5035.

The sediment samples consisted of natural organic matter such as leaves and silt and clay. No wastes, debris, sheens or free phase liquids were observed in the sediments during the sediment characterization sampling.

3.6.1.2 *Miscellaneous Investigative/"FYI" samples*

As discussed in Section 3.2.4, during the course of the soil remediation activities, soil or material was occasionally encountered that exhibited physical characteristics inconsistent with the surrounding soil. In some cases if a post-excavation sample was not targeted for the area, or to investigate a potential residual source area, these non-typical soils/materials were sampled for characterization purposes. In most cases, these samples were analyzed for TCL VOCs + TICs, TCL SVOCs + TICs, and Target Analyte List (TAL) Metals. In some instances if a sample was collected from an area in addition to the required post-excavation samples to document soil quality in the respective area, it was referred to as an "FYI" sample and may have been analyzed for a portion of, or the complete list of parameters listed above. The analyses performed on a specific "FYI" sample are provided in Table 3-2.

3.6.2 *Post-Excavation Soil Sampling and Analysis*

As per the Technical Requirements, post excavation samples were collected from the sewer line excavations at the frequency of one per 30 linear feet from the sidewall of the excavation, and one per 50 linear feet from the base of the excavation (Plate 1). In cases where an excavation was not linear such as the Pond, a grid was superimposed on the excavation, and post excavation samples were collected at the frequency of one per 50 square feet. The locations of these non-linear excavations are shown in Figure 3-3 entitled "Additional Excavation Findings - Feature Location Map". The post-excavation sample locations collected from each additional excavation are shown in Figure 3-4. Post-excavation samples collected during sewer decommissioning activities were consistently analyzed for TCL VOCs + TICs, TCL SVOCs + TICs, and TAL Metals.

3.6.3 *Potential Re-use Sampling and Analysis*

The sampling of soil stockpiled from the removal activity was completed in a staged process. Due to the expedited schedule of the project, an initial screening round of samples was collected from each pile of stockpiled soil. If the results from the screening samples detected constituents at concentrations exceeding the more stringent of their respective NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC) or Impact to Ground Water Soil Cleanup Criteria (IGWSCC), or if the respective criteria for total volatile organics (1,000 mg/kg) or total organic compounds (10,000 mg/kg) were exceeded, the soil pile was staged for waste characterization and recycling offsite.

Figure 3-2
Stormwater Retention Pond Sediment Sample Locations
Remedial Investigation
Givaudan-Roure Corporation
Clifton, New Jersey

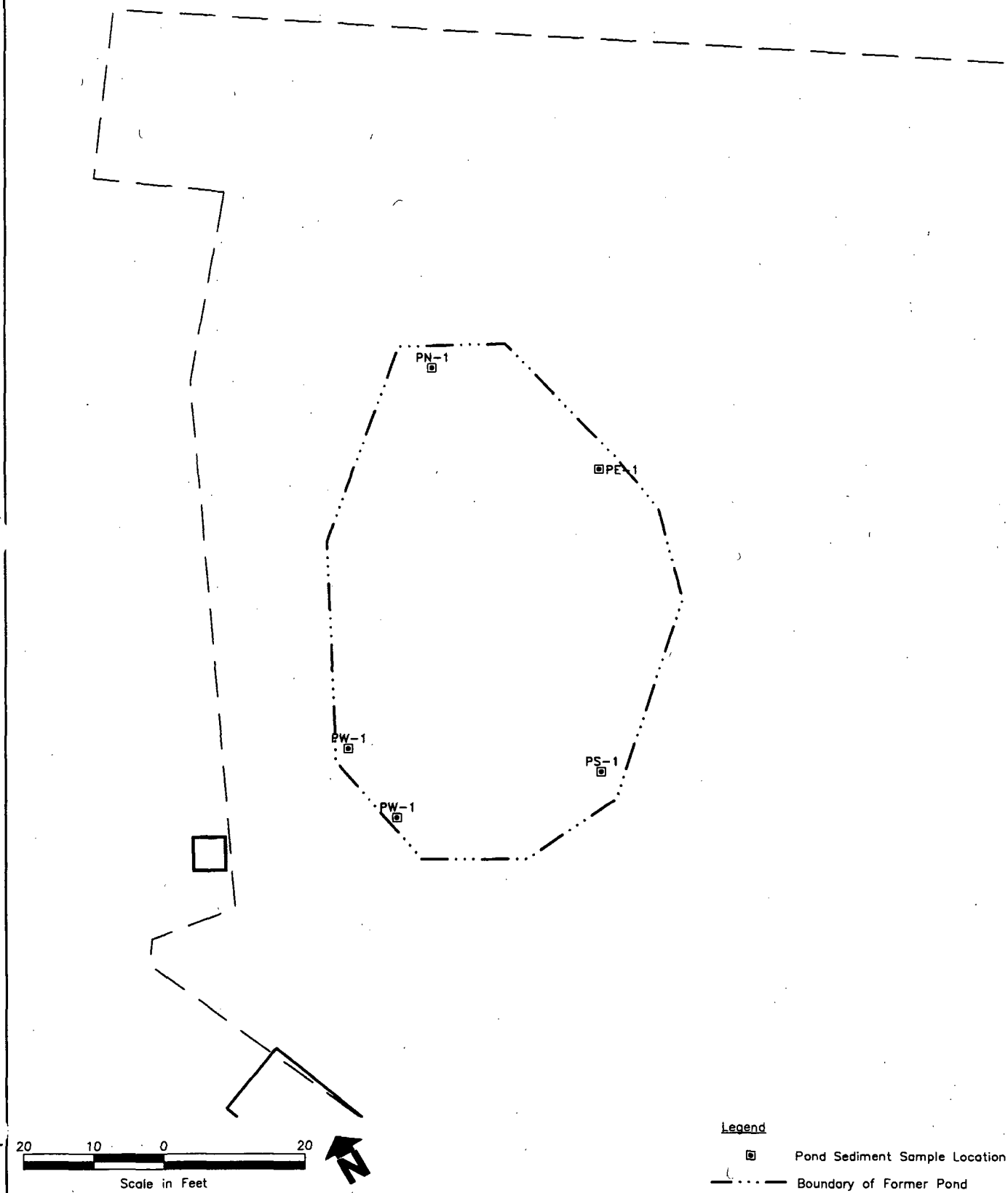


Figure 3-3
Additional Excavation Findings
Feature Location Map
 Givaudan Roure
 Clifton, New Jersey

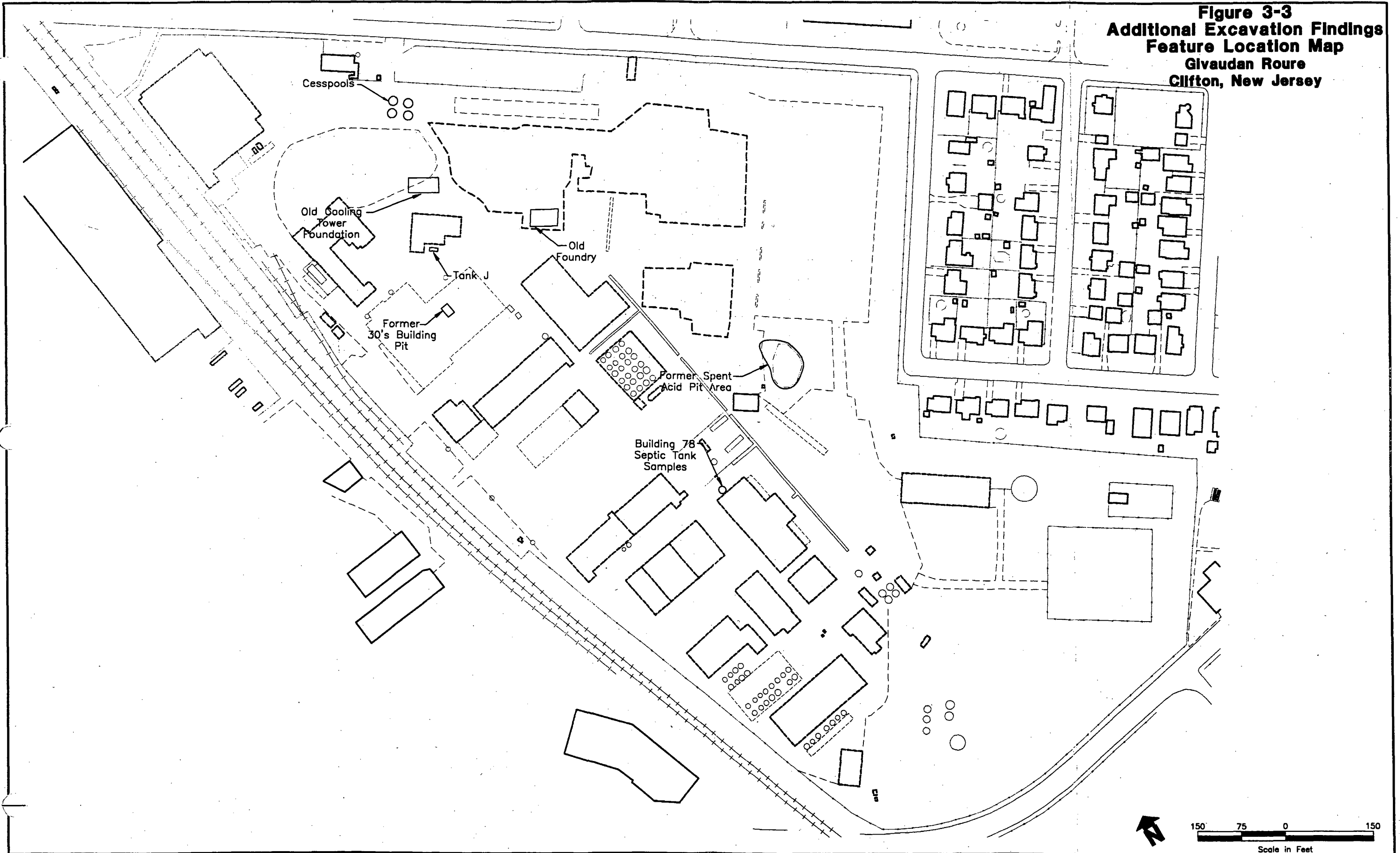
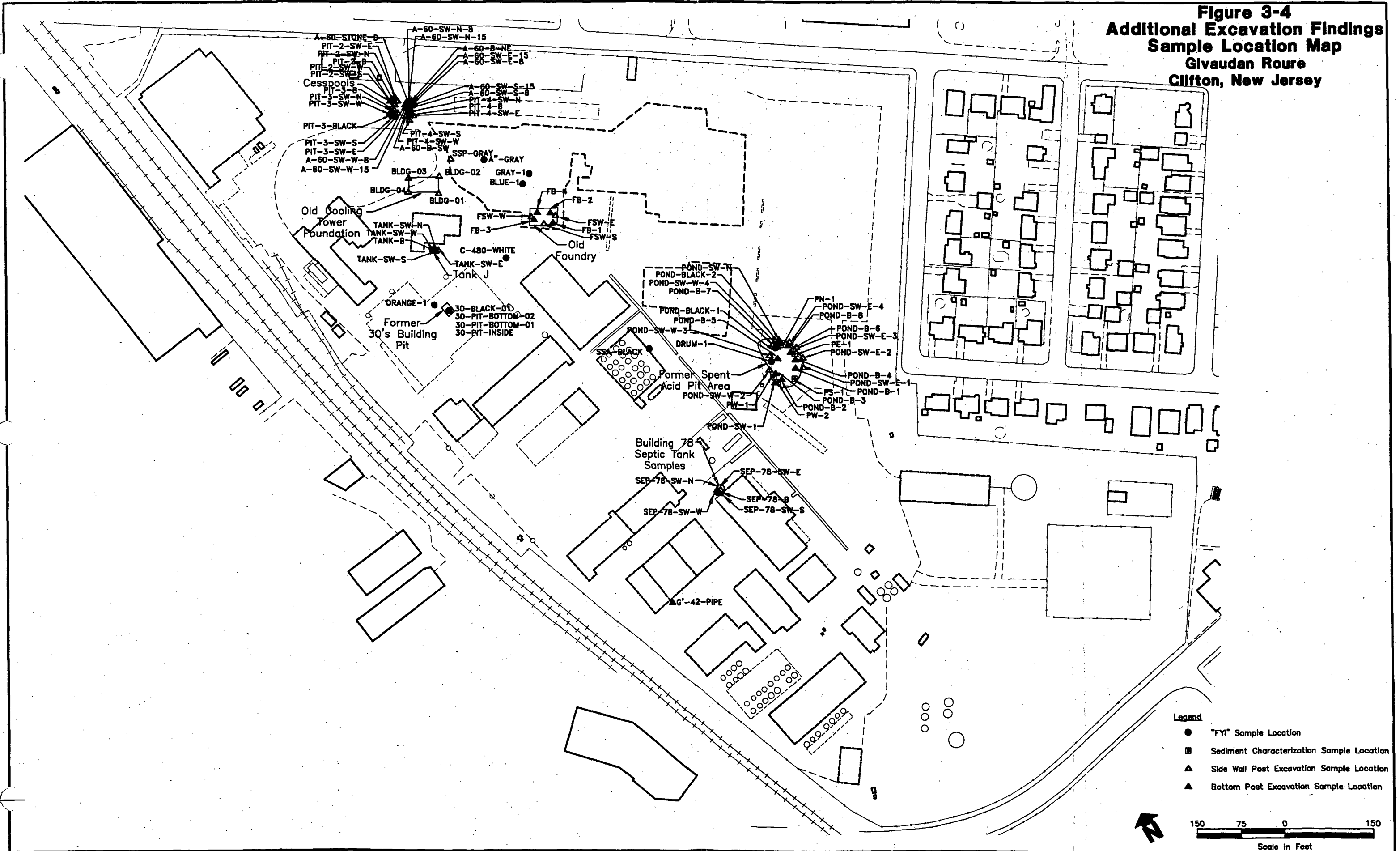


Figure 3-4
Additional Excavation Findings
Sample Location Map
 Glvaudan Rour
 Clifton, New Jersey



If the preliminary screening round of analytical results did not detect compounds at concentrations exceeding their respective soil cleanup criteria (RDCSCC/IGWSCC), the soil pile was resampled to comply with the Technical Requirements.

Soil samples were then collected from the excavated staged soil piles that passed the initial screening at the frequency of 1 per 20 cubic yards of soil to document the pile soil quality and to determine if the pile was suitable for backfilling. Upon receiving the soil analytical results from ERM-FAST, a decision to backfill, or to ship a specific soil pile offsite for recycling was made based on a comparison of the data to the more stringent of the RDCSCC/IGWSCC.

Soil piles in which no organic or inorganic constituents were detected at concentrations exceeding the more stringent of the two criteria were unconditionally used for backfill. In some instances, if a pile was found to contain limited or inconsistent detections of constituents identified as background, or not related to site operations such as low levels of metals or Polynuclear Aromatic Hydrocarbons (PAHs) at concentrations exceeding the RDCSCC, but not exceeding the IGWSCC, the soil may have been used to backfill in an area which will be included within the deed notice for the property and will be covered by the planned redevelopment of the property, thus eliminating potential future exposure to the soil.

3.6.4

Clean Fill Certification Sampling and Analysis

Soil and/or gravel used for backfilling purposes supplied by off-site sources was either certified as "clean" (no constituents present at concentrations exceeding the more stringent of the respective RDCSCC/IGWSCC), or sampled and analyzed prior to use. Copies of clean fill certification documents are provided in Appendix D.

If potential fill was not supplied with "clean" certification, samples were collected at the frequency of approximately one per 100 cubic yards of soil, and analyzed for TCL VOCs, TCL SVOCs, and TAL Metals by ERM-FAST. If any of the samples collected contained constituents at concentrations exceeding their respective soil cleanup criteria, the soil was rejected and returned to its supplier. Copies of the ERM-FAST soil analytical results for the backfill provided by off-site sources that was not certified as "clean" are provided in Appendix E.

Soil and/or concrete determined to be unfit for reuse based on the results of the analytical screening was sampled for waste characterization purposes prior to removal from the site for recycling or disposal. For materials not considered for potential on-site reuse such as the actual sewer lines, asphalt, and pond sediment or water, the required pre-disposal waste characterization samples were collected at the appropriate frequency for TCLP VOCs, SVOCs, Pesticides/PCBs, and Metals. A detailed discussion of the evaluation for excavated materials considered for potential on-site reuse is provided below.

On 26 May 1998, the US EPA promulgated the Phase IV, Part 2 Land Disposal Restrictions (effective date 24 August 1998) addressing numerous issues including alternative Land Disposal Restriction (LDR) treatment standards for contaminated soil. Under the Phase IV LDR's, generators of contaminated soil may choose to meet one of three alternatives:

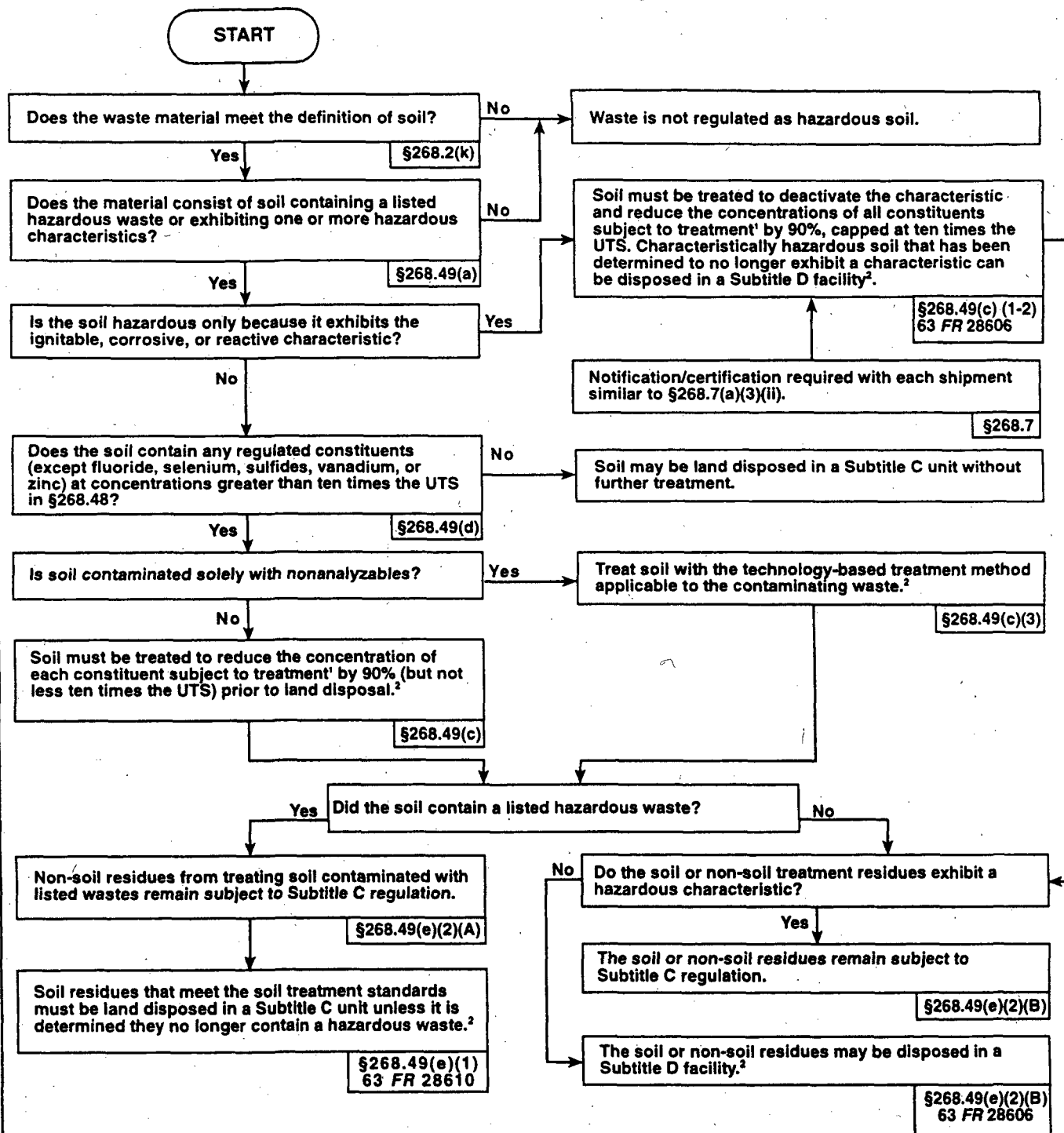
- Meet the treatment standards in Part 268.40 for the hazardous characteristic or contaminating listed waste;
- Obtain a treatability variance; or
- Meet new alternative standards found in Part 268.49.

Figure 3-5, excerpted from *Hazardous Waste Consultant* (August 1998), provides a detailed summary of the criteria used to evaluate the feasibility of treatment of soils containing hazardous waste. Under the logic flow diagram, soil residues from treating soils that meet treatment standards must be disposed in a Subtitle C landfill unless it is determined that they no longer contain a hazardous waste.

Further, under the Phase IV LDR's, when dealing with soil or containing a hazardous waste or a characteristic hazardous waste, the toxicity constituent, as well as "all underlying hazardous constituents" must be treated to a 90 percent reduction in concentration of hazardous constituents capped at 10 times the Universal Treatment Standards. After the treatment standards are met (confirmed by chemical analysis), the soil will be deemed to no longer contain a hazardous waste (by the "contained-in rule") and therefore, is not subject to the land disposal restrictions. The treated soil can then be placed back in the ground.

During the sewer excavation activities, the soil generated from the excavations was classified as either non-hazardous waste or hazardous waste, depending on the location of the excavation. Except for soils

Figure 3-5
Requirements for Hazardous Soil Under Alternative LDR
Treatment Standards Givaudan Roure Corporation
Givaudan Roure Corporation
Clifton, New Jersey



¹Constituents subject to treatment are all underlying hazardous constituents (i.e., the §268.48 UTS constituents, with the exception of fluoride, selenium, sulfides, vanadium, and zinc) present in the soil at a level ten times the UTS.

²Generators and TSD facilities must comply with the notification, certification, and recordkeeping requirements in §268.7.

UTS = universal treatment standards

Note: The alternate standards are not available for soils used to produce products that are used in a manner constituting disposal.

excavated adjacent to the former Maintenance Building (Building 50), impacted soils were classified as non-hazardous.

Soils excavated from the chemical sewers adjacent to Building 50 were impacted by operations inside the building, including parts cleaning and degreasing. Constituents of concern detected in the soil included common chlorinated degreasing agents such as carbon tetrachloride and tetrachloroethene, which are classified as F001 and F002 listed hazardous waste under 40 CFR Part 261.31.

The evaluation process for the management of excavated soil and concrete included the following steps:

- 1) After the soil or concrete was excavated, crushed (concrete only), and stockpiled, the soil and/or concrete was sampled and analyzed for TCL VOCs, SVOCs, and TAL Metals. If the concentrations of organic constituents and metals were less than the more stringent of their respective criteria (RDCSCC/IGWSCC for organics, RDCSCC for metals), the soil was not of regulatory concern and was suitable for on-site reuse as clean fill.
- 2) If the soil was determined to contain organic constituents at concentrations, which exceeded the more, stringent of the RDCSCC/IGWSCC, the soils could either be treated onsite to reduce the organic constituents of concern, or shipped offsite for recycling. Before the final disposition of treated soil was determined, the concentration of metals in the soil was also evaluated.
- 3) If the concentrations of one or more metals exceeded their respective RDCSCC, the concentrations were screened to determine the potential for the metal of concern to leach at a concentration which exceeded the regulatory standard when subjected to TCLP analysis, thus rendering the soil hazardous by characteristic.

If the concentration of any metal detected in soil was greater than 20 times the regulatory limit for TCLP analysis, TCLP analysis was required to quantitatively confirm the status of the soil. If the soil failed TCLP for a given constituent, it would be classified as a characteristic hazardous waste. If the TCLP analysis detected concentrations of metals at greater than 10 times the applicable Universal Treatment Standard (UTS), the soil was transported offsite for proper disposal.

- 4) If the analytical results for any given metal were less than 10 times the UTS, the soil could be backfilled, but would be subjected to institutional controls.
- 5) If the analytical results for any given metal in soil was less than 20 times the regulatory standard for TCLP analysis and less than the

NRDCSCC, the soil would be considered to be non-hazardous and could be backfilled, but would be subjected to institutional controls.

- 6) If the concentration of any given metal was less than 20 times the regulatory standard for TCLP analysis and greater than the NRDCSCC, the soil could be backfilled, but would be subjected to institutional and engineering controls.

By meeting the performance criteria discussed above, the excavated soil met or exceeded the EPA requirements for land disposal of hazardous waste, Department criteria for non-hazardous contaminated soil (ID 27), unrestricted use of soil (Soil Cleanup Criteria) and Department criteria for remedial action selection (7:26E-5.1).

3.8

SOIL TREATMENT

As part of the soil remediation, on-site treatment of excavated soils was proposed for the purpose of remediating soils impacted by organic constituents for beneficial on-site reuse as backfill. A pilot study was conducted using a Mobile Injection Treatment Unit (MITU) operated by CBA Environmental, Hegins, PA to treat impacted soil excavated from the old chemical sewer, specifically, the soil excavated from the north side of Building 50.

The MITU technology was found to be successful at reducing the concentrations of VOCs in soil. However, the attained reduction required a lengthy time period, which was not conducive to the schedule of the project. The MITU was not successful at significantly reducing the concentrations of SVOCs. Following the pilot study, the MITU was demobilized from the site. A letter report summarizing the pilot study was submitted to the Department on 21 December 1999. A copy of this letter report is provided in Appendix F.

3.9

SOIL RECYCLING

Once any soil not fit for on-site reuse was characterized for disposal, it was characterized and transported to Clean Earth by EWMI for recycling. Copies of the waste characterization analytical results and forms which document the transportation and disposal of the soil are provided in Appendix G. Asphalt removed from the surface prior to soil excavation was shipped offsite to Braen Stone Industries, Inc. for recycling. Documentation for the transportation and disposal of asphalt is provided in Appendix H. Concrete excavated from the surface and subsurface features such as foundations and the containment for the new chemical

sewer was crushed on-site for potential reuse as backfill. Concrete was not sent offsite because it was determined to be acceptable for re-use as a backfill material based on the analytical results from the characterization samples collected following crushing activities. The analytical data supporting the beneficial on-site reuse determination is provided in Appendix I.

3.10

BACKFILLING

Backfilling of the excavation trenches and additional excavations such as the former stormwater retention pond was performed consistently for the entire site. Backfilling was performed by placing 6 to 8-inch lifts of clean soil from excavations, or clean fill/crushed stone supplied from offsite into the open excavations. The lifts were evenly placed and rolled after placement to insure proper compaction.

In the Pond, and at selected areas onsite, once a lift of soil was in place and rolled, the lift was tested using a Troxler model 3430 nuclear densometer to insure that the lift was sufficiently compacted. Specifications detailing the requirements for excavation backfilling and material compaction for these select areas is provided in Appendix J.

3.11

BUILDING 9 TANKS

Givaudan Roure closed fifty-two underground storage tanks in two phases, starting in 1993. The results of the tank closure activities were reported in two reports: *Underground Storage Tank Closure Report* (ERM, May, 1994) and *Revised Final Underground Storage Tank Closure Report* (ERM, August, 1995). Of these 52 tanks, five tanks (T-1, T-2, T-3, T-4, and T-55) were abandoned by Givaudan Roure before the tank closure activities started in 1993. As reported in the May 1994 report, tanks T-1, T-2, T-3, and T-4, located under Building 9, were abandoned in place by filling with sand. These tanks were abandoned in the 1970's before Building 9 was constructed, and were not accessible under the foundation of Building 9.

During the demolition of Building 9, tanks T-1 through T-4 were exposed after the foundation was removed. Upon accessing these tanks in preparation for removal, it was determined that the tanks were filled with water rather than sand.

The four tanks were removed consistent with the guidelines and protocols described in the American Petroleum Institute Recommended Practice 1604. Removal of the tanks proceeded as follows:

- The soil above and around the tanks was removed and stockpiled and water filling the tanks was removed and containerized for proper disposal.
- The tanks were cleaned and the rinsate collected and containerized for proper disposal.
- The tanks were removed from the excavations and placed on the ground surface adjacent to the excavation and rendered unusable prior to disposal.
- The tanks were removed from the Site and transported to a scrap metal recycling facility.
- The excavation was backfilled after collecting post excavation samples, with the stockpiled soil after it had been sampled and found to meet the reuse criteria.

To document the closure of these tanks, soil samples were collected consistent with the requirements of 7:26E-3.9 and 6.3 of the *Technical Requirements for Site Remediation* (Technical Requirements) (Table 3-3). Post excavation soil sampling consisted of the following:

- Eight samples were collected from the center line of each tank. The samples were collected equidistantly from each other and the outermost samples were within 2.5 feet from the end of the tank.
- Soil samples were analyzed for TCL VOCs, SVOCs, and a screen for "alpha pinene", the material the tanks contained before closure in the 1970's, as reported by Givaudan.

No waste characterization analytical results or documentation on transportation and disposal for the Building 9 tanks is provided. It will be provided to the Department in a separate report.

Table 3-1a
Sewer Summary (Old Chemical Sewers)
Remedial Action Report for Soil Remediation
Givaudan Roure Corporation
Clifton, New Jersey

Type	Designation	Location	Construction	Footage Total	Footage Removed	Secondary Contained	Post Excavation Sampling	Notes/Comments
OCS	A	North center of plant	VC	335	335	No	Yes	
OCS	A'	Under building 9	VC ¹	70	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	A"	Middle of the plant (north side)	VC	60	60	No	Yes	
OCS	A'''	North center of site	VC	150	150	No	Yes	Sewer located on top of old foundary tunnels
OCS	B	North side of site	VC	755	755	No	Yes	
OCS	B'	North center of site	VC	250	250	No	Yes	
OCS	B"	North center of site	VC ¹	0	0	No	In-Situ	Was previously removed during NCS installation.
OCS	B'''	North side of site	VC	50	50	No	Yes	
OCS	BB	North side of site	VC	70	70	No	Yes	Sewer ran east from B475 manhole
OCS	C	Near Building 200	VC	710	586	No	Yes	See supplemental investigation (remaining 124').
OCS	C'	Around building 7	VC ¹	220	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	C"	Around building 7	VC ¹	195	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	C'''	Along the north side of building 200	VC	70	70	No	Yes	
OCS	C''''	NE lateral into building 200	VC	40	40	No	Yes	
OCS	C'''''	Around building 7	VC ¹	25	25	No	In-Situ	
OCS	C6	Lateral into building 50	VC	30	30	No	Yes	
OCS	CC	Between buildings 200 and 89	VC	90	90	No	Yes	
OCS	CD	Between buildings 200 and 89	VC	40	40	No	Yes	
OCS	CE	Between buildings 200 and 89	VC	25	25	No	Yes	
OCS	D	East side of site in parking lot	VC	420	420	No	Yes	
OCS	D'	Included with line D	VC ¹	0	0	No	In-Situ	
OCS	D"	East side of site	VC	50	50	No	Yes	
OCS	DA	East side of site in parking lot	RFP	50	50	No	Yes	Connected storm sewer to old chem sewer
OCS	E	Center of plant	VC	420	420	No	Yes	
OCS	E'	Between the 40's row and the 30's pad	VC	200	200	No	Yes	
OCS	E"	Between the 40's row and the 30's pad	VC	90	90	No	Yes	
OCS	E'''	Along the north side of the 40's pad	VC	200	200	No	Yes	
OCS	E''''	Along the north side of the 50's pad	VC	200	200	No	Yes	
OCS	E'''''	Along the south side of 60's pad	VC	200	200	No	Yes	
OCS	E"A	Between the 40's row and the 30's pad	VC	50	50	No	Yes	
OCS	F	North of building 78	VC	180	180	No	Yes	
OCS	F'	Along the north side of building 68-168	VC	140	140	No	Yes	
OCS	G	East side of site	VC	490	490	No	Yes	
OCS	G'	East to west along the south side of the 80's row	VC	345	285	No	Yes	See supplemental investigation (remaining 60').
OCS	G"	Between buildings 93 and 94	VC ¹	25	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	G'''	Between buildings 93 and 94	VC ¹	168	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	G''''	South side of building 98	VC	460	200	No	Yes	See supplemental investigation (remaining 260').

Table 3-1a
Sewer Summary (Old Chemical Sewers)
Remedial Action Report for Soil Remediation
Givaudan Roure Corporation
Clifton, New Jersey

OCS	G ¹	Between building 95 and tank farm	VC ¹	70	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	H	South center of site	VC ¹	525'	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	H'	South end of site	VC ¹	77'	0	No	In-Situ	Not excavated. See supplemental investigation.
OCS	I	South end of site	VC ¹	0'	0	No	In-Situ	Not excavated. Outfall to POTW.

Notes: OCS: Old Chemical Sewer

NCS: New Chemical Sewer

STS: Stormwater Sewer

VC: Vitrified Clay

RFP: Reinforced Fiberglass Pipe

CMP: Corrugated Metal Pipe

In-Situ: denotes a section of sewer that was not excavated but subsequently characterized by soil borings during the supplemental sewer investigation.

Total Length of Old Chemical Sewer (ft.): 6943

Total Length of Sewer Excavated (ft.): 5751

¹ Construction is assumed to be vitrified clay. However, since the footnoted sections were not excavated, the exact construction was not confirmed.

² Post-excavation samples not collected due to video logging of sewer integrity.

³ Vitrified clay construction except where repairs were made, or connections to manholes, etc. were made. In these cases, fittings were typically constructed of corrugated metal pipe.

In cases where a sewer served multiple purposes, the designation given represents the primary use.

Table 3-1b
Sewer Summary (Stormwater Sewers)
Remedial Action Report for Chemical Sewer
Givaudan Roure Corporation
Clifton, New Jersey

Type	Designation	Location	Construction	Footage Total	Footage Removed	Secondary Contained	Post Excavation Sampling	Notes/Comments
STS	SSA	Middle of the plant	VC ³	210	210	No	Yes	Ran into pond
STS	SSB	Along 201 tank farm	VC ³	60	60	No	Yes	
STS	SSC	Along 201 tank farm	VC ³	30	30	No	Yes	
STS	SSD	East side of plant in parking lot	VC ³	420	420	No	Yes	
STS	SSE	East side of building 200	VC ³	70	70	No	Yes	
STS	SSF	East side of the 201 tank farm	VC ³	60	60	No	yes	
STS	SSG	North side of site	VC ³	450	450	No	Yes	
STS	SSH	Middle of the plant	VC and CMP	250	250	No	Yes	
STS	SSI	North side of site	VC ³	70	70	No	Yes	
STS	SSJ	North side of site	VC ³	300	300	No	Yes	
STS	SSK	North side of site	VC ³	50	50	No	Yes	
STS	SSL	Between the building 50's and 60's pads	VC ³	160	160	No	Yes	
STS	SSM	Middle of the plant	VC ³	300	300	No	Yes	
STS	SSN	Near building 89	VC ³	30	30	No	Yes	
STS	SSO	Near building 89	VC ³	85	85	No	Yes	
STS	SSP	Near building 89	VC ³	250	250	No	Yes	Also used for sanitary sewer
STS	SSQ	Between the 30's pad and building 89	VC ³	30	30	No	Yes	
STS	SSR	Near the former stormwater retention pond	VC ³	60	60	No	Yes	
STS	SSZ	West side of site along RR tracks	VC ³	500	500	No	Yes	

Notes: OCS: Old Chemical Sewer
NCS: New Chemical Sewer
STS: Stormwater Sewer
VC: Vitrified Clay
RFP: Reinforced Fiberglass Pipe
CMP: Corrugated Metal Pipe

Total Length of Stormwater Sewer (ft.): 3,385

Total Length of Sewer Excavated (ft.): 3,385

in-situ: denotes a section of sewer that was not excavated but subsequently characterized by soil borings during the supplemental sewer investigation.

¹ Construction is assumed to be vitrified clay. However, since the footnoted sections were not excavated, the exact construction was not confirmed.

² Post-excavation samples not collected due to video logging of sewer integrity.

³ Vitrified clay construction except where repairs were made, or connections to manholes, etc. were made. In these cases, fittings were typically constructed of corrugated metal pipe.

In cases where a sewer served multiple purposes, the designation given represents the primary use.

Table 3-1c
Sewer Summary (New Chemical Sewers)
Remedial Action Report for Chemical Sewer
Givaudan Roure Corporation
Clifton, New Jersey

Type	Designation	Location	Construction	Footage Total	Footage Removed	Secondary Contained	Post Excavation Sampling	Notes/Comments
NCS	NCS	North center of plant	RFP	780	780	No ²	No	Video-logging used to demonstrate pipe integrity
NCS	NCS	Center of plant	RFP	1335	1335	Yes	No	

Notes: OCS: Old Chemical Sewer
NCS: New Chemical Sewer

Total Length of New Chemical Sewer (ft.) 2115

STS: Stormwater Sewer

VC: Vitrified Clay

Total Length of Sewer Excavated (ft.): 2115

RFP: Reinforced Fiberglass Pipe

CMP: Corrugated Metal Pipe

in-situ: denotes a section of sewer that was not excavated but subsequently characterized by soil borings during the supplemental sewer investigation.

¹ Construction is assumed to be vitrified clay. However, since the footnoted sections were not excavated, the exact construction was not confirmed.

² Post-excavation samples not collected due to video logging of sewer integrity.

³ Vitrified clay construction except where repairs were made, or connections to manholes, etc. were made. In these cases, fittings were typically constructed of corrugated metal pipe.

In cases where a sewer served multiple purposes, the designation given represents the primary use.

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
FYI	12/1/98	30 Black-01	1,2	ERM-FAST
Post-Ex	12/16/98	30 Pit Bottom 01	1, 2, 3	ERM-FAST
Post-Ex	12/16/98	30 Pit Bottom 02	1, 2, 3	ERM-FAST
Pre-Ex	12/16/98	30 Pit Inside	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-01	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-02	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-03	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-04	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-05	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-06	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-07	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6A-08	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6B-01	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6B-02	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6B-03	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6B-04	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6B-05	1, 2, 3	ERM-FAST
Soil Pile	4/6/99	4/6B-06	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	8/11-01	1, 2	ERM-FAST
Soil Pile	8/12/98	8/11-01	4	Severn Trent
Soil Pile	8/12/98	8/11-02	1, 2	ERM-FAST
Soil Pile	8/12/98	8/11-02	4	Severn Trent
Soil Pile	8/12/98	8/12-01	1, 2	ERM-FAST
Soil Pile	8/12/98	8/12-01	4	Severn Trent
Soil Pile	8/12/98	8/12-02	1, 2	ERM-FAST
Soil Pile	8/12/98	8/12-02	4	Severn Trent
Soil Pile	8/17/98	8/14-C-01	1,2	ERM-FAST
Soil Pile	8/17/98	8/14-C-02	1,2	ERM-FAST
Soil Pile	8/17/98	8/17/C-01	1,2	ERM-FAST
Soil Pile	8/17/98	8/17/C-02	1,2	ERM-FAST
Soil Pile	8/18/98	8/18/C-01	1, 2, 3	Severn Trent
Soil Pile	8/18/98	8/18/C-01	1, 2	ERM-FAST
Soil Pile	8/18/98	8/18/C-02	1,2	ERM-FAST
Soil Pile	8/19/98	8/19/DG-01	1,2	ERM-FAST
Soil Pile	8/19/98	8/19/DG-02	1,2	ERM-FAST
Soil Pile	8/20/98	8/20/G-01	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	8/20/G-01	4	Severn Trent
Soil Pile	8/20/98	8/20/G-02	1,2	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	8/20/98	8/20/G-02	4	Severn Trent
Soil Pile	8/20/98	8/20/G-03	1,2	ERM-FAST
Soil Pile	8/20/98	8/20/G-03	4	Severn Trent
Soil Pile	8/20/98	8/20/G-04	1,2	ERM-FAST
Soil Pile	8/20/98	8/20/G-04	4	Severn Trent
Soil Pile	8/20/98	8/20/G-05	1,2	ERM-FAST
Soil Pile	8/20/98	8/20/G-05	4	Severn Trent
Soil Pile	8/26/98	8/25/B-01	1,2	ERM-FAST
Soil Pile	8/26/98	8/25/B-01	4	Severn Trent
Soil Pile	8/26/98	8/25/B-02	1,2	ERM-FAST
Soil Pile	8/26/98	8/25/B-02	4	Severn Trent
Soil Pile	8/26/98	8/25/B-03	1,2	ERM-FAST
Soil Pile	8/26/98	8/25/B-03	4	Severn Trent
Soil Pile	8/26/98	8/25/B-03 DUP	4	Severn Trent
Soil Pile	8/26/98	8/25/B-04	1,2	ERM-FAST
Soil Pile	8/26/98	8/25/B-04	4	Severn Trent
Soil Pile	8/26/98	8/25/B-05	1,2	ERM-FAST
Soil Pile	8/26/98	8/25/B-05	4	Severn Trent
Soil Pile	8/26/98	8/25/B-06	1,2	ERM-FAST
Soil Pile	8/26/98	8/25/B-06	4	Severn Trent
Soil Pile	8/31/98	A"-01	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-01	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	A"-02	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-02	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	A"-03	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-03	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-04	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-05	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-06	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-06 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-07	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-08	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-09	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-10	1, 2, 3	ERM-FAST
Soil Pile	10/1/98	A-10/1-01	1, 2, 3	ERM-FAST
Soil Pile	10/1/98	A-10/1-01	3	Severn Trent
Soil Pile	10/1/98	A-10/1-02	1, 2, 3	ERM-FAST
Soil Pile	10/1/98	A-10/1-02	3	Severn Trent

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	10/28/98	A-10/28-01	1, 2, 3	ERM-FAST
Soil Pile	10/28/98	A-10/28-02	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-10/5-01	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-10/5-02	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-10/5-03	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-10/5-04	1, 2, 3	ERM-FAST
Post-Ex	8/31/98	A"-100B	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	A-100-B	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	A-11	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	A-130-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	A-150-B	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	A-150-B	3	Severn Trent
Post-Ex	9/30/98	A-160-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-190-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-200-B	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-200-B DUP	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-220-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-250-B	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-250-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-280-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-300-B	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	A-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-30-SW-N2	2	ERM-FAST
Post-Ex	10/28/98	A-30-SW-S2	2	ERM-FAST
Post-Ex	11/2/98	A"-30-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	A-320-SW-N	1, 2, 3	ERM-FAST
Post-Ex	8/31/98	A"-50B	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	A"-50-B	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	A-50-B	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-B-NE	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-B-SW	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-STONE-B	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	A"-60-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-E-08	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-E-15	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-N-08	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-N-15	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	A-60-SW-S	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	9/30/98	A-60-SW-S DUP	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-S-08	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-S-15	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-W-08	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-60-SW-W-15	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	A-9/30-01	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	A-9/30-02	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	A-9/30-03	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	A-9/30-04	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-90-SW-N2	3	ERM-FAST
Post-Ex	9/30/98	A-90-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/28/98	A-90-SW-S2	3	ERM-FAST
Soil Pile	11/2/98	AB-11/2-01	1, 2, 3	ERM-FAST
Soil Pile	11/2/98	AB-11/2-02	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	AB-11/2-03	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	AB-11/2-04	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	AB-11/2-05	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	AB-11/2-06	1, 2, 3	ERM-FAST
FYI	12/9/98	A"-Gray	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	B""-01	1, 2, 3	ERM-FAST
Soil Pile	8/13/98	B"-01	1, 3	ERM-FAST
Soil Pile	8/31/98	B'-01	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-01	1, 2	ERM-FAST
Post-Ex	8/13/98	B""-01B	1, 2, 3	ERM-FAST
Post-Ex	8/13/98	B-01B	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	B""-02	1, 3	ERM-FAST
Soil Pile	8/13/98	B"-02	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	B'-02	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-02	1, 3	ERM-FAST
Post-Ex	8/13/98	B-02B	1, 3	ERM-FAST
Soil Pile	8/17/98	B""-03	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	B'-03	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-03	1, 2, 3	ERM-FAST
Post-Ex	8/13/98	B-03B	1, 3	ERM-FAST
Soil Pile	8/12/98	B-04	1, 3	ERM-FAST
Post-Ex	8/13/98	B-04B	1, 3	ERM-FAST
Soil Pile	8/12/98	B-05	1, 2, 3	ERM-FAST
Post-Ex	8/13/98	B-05B	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	8/12/98	B-06	1, 3	ERM-FAST
Post-Ex	8/13/98	B-06B	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-07	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-08	1, 3	ERM-FAST
Soil Pile	8/12/98	B-09	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-10	1, 3	ERM-FAST
Post-Ex	8/31/98	B'-100B	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-11	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	B-12	1	ERM-FAST
Post-Ex	8/31/98	B'-125 DUP	1, 2, 3	ERM-FAST
Post-Ex	8/31/98	B'-125B	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	B'-125-B2	2	ERM-FAST
Soil Pile	8/12/98	B-13	1, 2, 3	ERM-FAST
Soil Pile	8/13/98	B-14	1, 3	ERM-FAST
Soil Pile	8/13/98	B-15	1, 2, 3	ERM-FAST
Post-Ex	8/31/98	B'-150B	1, 2, 3	ERM-FAST
Soil Pile	8/13/98	B-16	1, 3	ERM-FAST
Post-Ex	8/31/98	B'-200B	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-22	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-23	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-24	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-25	1	ERM-FAST
Soil Pile	8/26/98	B-25	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-26	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-27	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	B-28	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	B-330-SW-E	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	B-350-B	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	B-360-SW-W	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	B-390-SW-E	1, 2, 3	ERM-FAST
Soil Pile	11/2/98	B-40	1, 2, 3	ERM-FAST
Post-Ex	11/2/98	B-400-B	1, 2, 3	ERM-FAST
Soil Pile	11/2/98	B-41	1, 2, 3	ERM-FAST
Soil Pile	11/2/98	B-41A	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	B-475-B	1, 2, 3	ERM-FAST
Post-Ex	8/31/98	B'-50B	2, 3	ERM-FAST
Post-Ex	8/25/98	B-525-B	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	B-575-B	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	8/25/98	B-625-B	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	B-675-B	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	B-755-B	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	BA-01	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	BA-01	2, 3	Severn Trent
Post-Ex	8/19/98	BA-01B	1, 3	ERM-FAST
Soil Pile	8/18/98	BA-02	1, 3	ERM-FAST
Soil Pile	8/25/98	BB-01	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	BB-02	1, 2, 3	ERM-FAST
Soil Pile	8/25/98	BB-02 DUP	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	BB-50-B	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	B'D-01	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	B'D-02	1, 2, 3	ERM-FAST
Soil Pile	8/31/98	B'D-03	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	BD-586-B	2, 3	ERM-FAST
Post-Ex	8/25/98	BD-586-SW	2, 3	ERM-FAST
Post-Ex	2/24/99	Bldg-01	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	Bldg-02	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	Bldg-03	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	Bldg-04	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	Bldg-04A	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	BLDS-82B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	BLDS-82SW	1, 2, 3	ERM-FAST
FYI	9/3/98	Blue-01	2, 3	ERM-FAST
Soil Pile	10/7/98	C""-01	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	C-01	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	C-01A	1, 2, 3	ERM-FAST
Post-Ex	8/13/98	C-01-B	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	C-02	1, 3	ERM-FAST
Post-Ex	8/18/98	C-02-B	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	C-03	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	C-03 DUP	1, 3	ERM-FAST
Post-Ex	8/18/98	C-03-B	1, 3	ERM-FAST
Soil Pile	8/17/98	C-04	1, 3	ERM-FAST
Post-Ex	8/18/98	C-04-B	1, 3	ERM-FAST
Soil Pile	8/17/98	C-05	1, 2, 3	ERM-FAST
Post-Ex	8/18/98	C-05-B	1, 2, 3	ERM-FAST
Soil Pile	8/17/98	C-06	1, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	8/18/98	C-07	1, 3	ERM-FAST
Soil Pile	8/18/98	C-08	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	C-09	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-0-B	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	C-10	1, 3	ERM-FAST
Soil Pile	10/26/98	C-10/26-01	1, 2, 3	ERM-FAST
Soil Pile	10/26/98	C-10/26-02	1, 2, 3	ERM-FAST
Soil Pile	10/26/98	C-10/26-03	1, 2, 3	ERM-FAST
Soil Pile	10/27/98	C-10/27-01	1, 2, 3	ERM-FAST
Soil Pile	10/27/98	C-10/27-01 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/27/98	C-10/27-02	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/27-04	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/27-05	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/27-06	1, 2, 3	ERM-FAST
Soil Pile	10/29/98	C-10/29-01	1, 2, 3	ERM-FAST
Soil Pile	10/29/98	C-10/29-02	1, 2, 3	ERM-FAST
Soil Pile	10/29/98	C-10/29A-01	1, 2, 3	ERM-FAST
Soil Pile	10/29/98	C-10/29A-02	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/29A-03	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/29A-04	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/29A-05	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	C-10/29A-05 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-10/6-01	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-10/6-02	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-10/6-03	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-10/6-04	1, 2, 3	ERM-FAST
Soil Pile	10/7/98	C-10/7-01	1, 2, 3	ERM-FAST
Soil Pile	10/7/98	C-10/7-02	1, 2, 3	ERM-FAST
Soil Pile	10/7/98	C-10/7-03	1, 2, 3	ERM-FAST
Soil Pile	10/7/98	C-10/7-04	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-10-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-10-SW-E	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	C-11	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	C-12	1, 3	ERM-FAST
Soil Pile	10/6/98	C-13	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-14	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-15	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-150-02	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	8/25/98	C-150-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-15-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-15-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-15-SW-W	1, 2, 3	ERM-FAST
Soil Pile	10/6/98	C-16	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-175-02	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-180-SW-W	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-200-02	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-210-SW-E	1, 2, 3	ERM-FAST
Post-Ex	8/26/98	C-225-02	1, 2, 3	ERM-FAST
Post-Ex	8/26/98	C-230-SW-W	1, 2, 3	ERM-FAST
Post-Ex	8/26/98	C-250-02	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-260-SW-E	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-275-02	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-290-SW-W	1, 2, 3	ERM-FAST
Post-Ex	8/25/98	C-300-02	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-330-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-350-B	1, 2, 3	ERM-FAST
Post-Ex	10/29/98	C-350-B2	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-360-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-360-SW-N DUP	1, 2, 3	ERM-FAST
Post-Ex	10/29/98	C-360-SW-N2	1, 2, 3	ERM-FAST
Post-Ex	10/29/98	C-360-SW-S2	1, 2, 3	ERM-FAST
Post-Ex	10/29/98	C-390-SW-N2	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-390-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/29/98	C-390-SW-S2	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-400-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C""-40-B	1, 2, 3	ERM-FAST
Post-Ex	11/9/98	C""-40-B2	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-420-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-450-B	1, 2, 3	ERM-FAST
Post-Ex	10/27/98	C-450-B2	1, 2, 3	ERM-FAST
Post-Ex	10/27/98	C-450-SW-N2	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-450-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/27/98	C-450-SW-S2	1, 2, 3	ERM-FAST
Post-Ex	3/23/99	C-480-B-05	1, 2, 3	ERM-FAST
Post-Ex	10/27/98	C-480-B2	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary

Givaudan Roure Corporation

Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	10/6/98	C-480-SW-N	1, 2, 3	ERM-FAST
Post-Ex	3/23/99	C-480-SW-N-05	1	ERM-FAST
Post-Ex	10/27/98	C-480-SW-N2	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-480-SW-S	1, 2, 3	ERM-FAST
Post-Ex	3/23/99	C-480-SW-S-05	1	ERM-FAST
Post-Ex	10/27/98	C-480-SW-S2	1, 2	ERM-FAST
Post-Ex	10/27/98	C-480-SW-S2	3, 5, 6	Severn Trent
FYI	10/27/98	C-480-WHITE	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-500-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C ^{'''} -50-B	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-510-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-540-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-550-B	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	C-570-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	C-570-SW-N2	1, 2, 3	ERM-FAST
Soil Pile	8/19/98	C6-01	1, 2, 3	ERM-FAST
Post-Ex	8/19/98	C6-01B	1, 2, 3	ERM-FAST
Soil Pile	8/19/98	C6-02	1, 3	ERM-FAST
Post-Ex	10/7/98	C ^{'''} -60-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C ^{'''} -70-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	C ^{'''} -70-B DUP	1, 2, 3	ERM-FAST
Post-Ex	10/27/98	C ^{'''} -70-SW-S2	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	C-B-01	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	C-B-02	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	C-B-03	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	C-B-04	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	C-B-05	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-01	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-02	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-02A	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-03	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-04	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-05	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	CBP-1/25-06	1, 2, 3	ERM-FAST
Soil Pile	10/1/98	CBP-10/1-01	1, 2, 3	ERM-FAST
Soil Pile	10/1/98	CBP-10/1-01	3	Severn Trent
Soil Pile	10/1/98	CBP-10/1-02	1, 2, 3	ERM-FAST
Soil Pile	10/1/98	CBP-10/1-02	3	Severn Trent

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	10/1/98	CBP-B-01	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	CBP-B-01	3	Severn Trent
Post-Ex	1/25/99	CBP-B-01	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	CBP-B-02	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	CBP-B-02	3	Severn Trent
Post-Ex	1/25/99	CBP-B-02	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	CBP-SW-1-S	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	CBP-SW-1-S	3	Severn Trent
Post-Ex	10/1/98	CBP-SW-2-S	1, 2, 3	ERM-FAST
Post-Ex	10/1/98	CBP-SW-2-S	3	Severn Trent
Post-Ex	1/25/99	CBP-SW-N-01	1, 2, 3	ERM-FAST
Post-Ex	1/25/99	CBP-SW-N-02	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CC-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	CC-30-SW-N2	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CC-50-B	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	CC-60-SW-N2	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CC-60-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CC-90-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CC-90-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/26/98	CC-90-SW-N2	1, 2, 3	ERM-FAST
Soil Pile	8/18/98	CD-01	1, 2	ERM-FAST
Soil Pile	8/18/98	CD-01	1, 2, 3, 7	ERM-FAST
Post-Ex	10/7/98	CD-0-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CD-0-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CD-30-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CD-40-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CD-40-B DUP	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CE-0-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CE-0-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CE-25-B	1, 2, 3	ERM-FAST
Post-Ex	10/7/98	CE-25-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	CPIT-B	1, 2, 3	ERM-FAST
Post-Ex	10/6/98	CPIT-B DUP	1, 2, 3	ERM-FAST
Pre-Ex	10/6/98	C-PIT-INSIDE	1, 2, 3	ERM-FAST
Pre-Ex	7/1/98	CS-22-02	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

**Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey**

Type	Date Collected	Sample ID	Analysis	Lab
Pre-Ex	7/1/98	CS-30-01	1, 2, 3	ERM-FAST
Post-Ex	8/19/98	D"-01B	1, 3	ERM-FAST
Soil Pile	8/19/98	D"-01	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	D-01	1, 2, 3	ERM-FAST
Soil Pile	8/19/98	D"-01 DUP	1, 3	ERM-FAST
Post-Ex	8/12/98	D-01B	1, 2, 3	ERM-FAST
Soil Pile	8/19/98	D"-02	1, 3	ERM-FAST
Soil Pile	8/12/98	D-02	1, 3	ERM-FAST
Post-Ex	8/12/98	D-02B	1, 3	ERM-FAST
Soil Pile	8/12/98	D-03	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	D-03A	1, 2, 3	ERM-FAST
Post-Ex	8/12/98	D-03B	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	D-04	1, 3	ERM-FAST
Soil Pile	8/12/98	D-04 DUP	1, 3	ERM-FAST
Post-Ex	8/12/98	D-04B	1, 3	ERM-FAST
Soil Pile	8/12/98	D-05	1, 2, 3	ERM-FAST
Post-Ex	8/19/98	D-05B	1, 3	ERM-FAST
Soil Pile	8/12/98	D-06	1, 3	ERM-FAST
Soil Pile	8/12/98	D-07	1, 2, 3	ERM-FAST
Soil Pile	8/12/98	D-08	1, 3	ERM-FAST
Soil Pile	8/19/98	D-08	1, 3	ERM-FAST
Soil Pile	8/19/98	D-09	1, 2, 3	ERM-FAST
Soil Pile	8/19/98	D-10	1, 3	ERM-FAST
Soil Pile	8/19/98	DA-01	1, 2, 3	ERM-FAST
Post-Ex	8/19/98	DA-01B	1, 2, 3	ERM-FAST
Soil Pile	8/19/98	DA-02	1, 3	ERM-FAST
Soil Pile	8/19/98	DA-03	1, 2, 3	ERM-FAST
FYI	1/22/99	Drum-01	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E"-03	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	E""-00-B	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	E""-00-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E"-00-B	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	E-00-B	1, 2, 3	ERM-FAST
Post-Ex	11/4/98	E-00-B2	3	ERM-FAST
Soil Pile	9/23/98	E""-01	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E""-01	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E""-01	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E"-01	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	9/28/98	E'-01	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E-01	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-02	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E'''-02	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E''-02	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E''-02	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-02	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	E-02	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-02 DUP	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'''-02 DUP	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-03	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E'''-03	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E''-03	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-03	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	E-03	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-04	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E'''-04	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E''-04	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E''-04	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-04	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	E-04	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-05	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E'''-05	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E''-05	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E''-05	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-05	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	E-05	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E''-05 DUP	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-06	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E'''-06	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E''-06	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-06	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	E-06	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-07	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E'''-07	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-07	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-07	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E''''-08	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	9/23/98	E""-08	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-08	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-08	1, 2, 3	ERM-FAST
Soil Pile	9/23/98	E""-09	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-09	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-09	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	E""-10	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-10	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-10	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	E-10/12-01	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	E-10/12-02	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	E-10/12-03	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-10/13-01	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-10/13-01 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-10/13-03	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-10/13-04	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E""-100-B	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E""-100-B	1, 2, 3	ERM-FAST
Post-Ex	9/24/98	E""-100-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-100-B	1, 2, 3	ERM-FAST
Post-Ex	9/29/98	E-100-B	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E""-100-SW	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E""-100-SW	1, 2, 3	ERM-FAST
Post-Ex	9/24/98	E'-100-SW	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-100-SW	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	E""-11	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-11	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	E""-11 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-12	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	E-120-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/24/99	E-120-SW-W-05	1	ERM-FAST
Soil Pile	10/13/98	E-13	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	E-135-B	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-14	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-15	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E""-150-B	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E""-150-B	1, 2, 3	ERM-FAST
Post-Ex	9/24/98	E'-150-B	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	9/28/98	E'-150-B	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	E-150-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-150-B DUP	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-150-SW	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-150-SW	1, 2, 3	ERM-FAST
Post-Ex	9/24/98	E'''-150-SW	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-150-SW	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	E-150-SW-E	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-16	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-16 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/13/98	E-17	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	E-18	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	E-180-SW-W	1, 2, 3	ERM-FAST
Post-Ex	11/4/98	E-180-SW-W2	3	ERM-FAST
Post-Ex	9/23/98	E''''-200-B	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-200-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-200-B	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	E-200-B	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-200-SW	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-200-SW	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-200-SW	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-210-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-240-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-250-B	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-270-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-300-B	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-300-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	E''''-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E''-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/24/99	E''-30-SW-E-05	2	ERM-FAST
Post-Ex	10/16/98	E''''-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	E-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-330-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-350-B	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-350-B DUP	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-360-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-390-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/13/98	E-400-B	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	11/4/98	E-400-B2	3	ERM-FAST
Post-Ex	10/13/98	E-420-SW-W	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-50-B	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E'''-50-B	1, 2, 3	ERM-FAST
Post-Ex	9/24/98	E''-50-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-50-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-50-B	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	E-50-B	1, 2, 3	ERM-FAST
Post-Ex	3/24/99	E''-50-B-05	2	ERM-FAST
Post-Ex	9/23/98	E''''-50-SW	1, 2, 3	ERM-FAST
Post-Ex	9/23/98	E''''-50-SW	1, 2, 3	ERM-FAST
Post-Ex	9/24/98	E'''-50-SW	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E'-50-SW	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E''-60-SW-S	1, 2, 3	ERM-FAST
Post-Ex	3/24/99	E''-60-SW-S-05	1	ERM-FAST
Post-Ex	9/29/98	E-60-SW-W	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'''-9/24-01	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'''-9/24-02	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'''-9/24-03	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-9/28-01	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-9/28-02	1, 2, 3	ERM-FAST
Soil Pile	9/28/98	E'-9/28-03	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E''-90-B	1, 2, 3	ERM-FAST
Post-Ex	9/28/98	E''-90-SW-N	1, 2, 3	ERM-FAST
Post-Ex	9/29/98	E-90-SW-W	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	E''A-10/5-1	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	E''A-10/5-2	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	E''A-10/5-3	1, 2, 3	ERM-FAST
Soil Pile	10/5/98	E''A-10/5-4	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	E''A-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/5/98	E''A-50-B	1, 2, 3	ERM-FAST
Post-Ex	9/29/98	E''B-0-B	1, 2, 3	ERM-FAST
Post-Ex	3/24/99	E''-B-0-B-05	2	ERM-FAST
Post-Ex	9/30/98	E''C-8-B	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	E''C-8-SW-N	1, 2, 3	ERM-FAST
Post-Ex	9/30/98	E''C-8-SW-S	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	EG-10/16-01	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	EG-10/16-02	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	10/16/98	EG-10/16-03	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	EG-10/16-04	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'S-9/23-01	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'S-9/23-02	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'S-9/23-03	1, 2, 3	ERM-FAST
Soil Pile	9/24/98	E'S-9/23-04	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E'S-9/29-01	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E'S-9/29-02	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E'S-9/29-03	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E'S-9/29-04	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E'S-9/29-05	1, 2, 3	ERM-FAST
Soil Pile	9/29/98	E'S-9/29-06	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	E'S-9/30-01	1, 2, 3	ERM-FAST
Soil Pile	9/30/98	E'S-9/30-02	1, 2, 3	ERM-FAST
Post-Ex	10/20/98	F'-00-B	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-01	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-01	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-01 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-02	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-02	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-03	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-03	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-04	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-04	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-05	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-05	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-06	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-06	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-07	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-08	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-09	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-10	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-10/12-01	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-10/12-02	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-10/12-03	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-10/12-04	1, 2, 3	ERM-FAST
Soil Pile	10/12/98	F'-10/12-04 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-10/19-01	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	10/19/98	F-10/19-02	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-10/19-03	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-10/19-04	1, 2, 3	ERM-FAST
Soil Pile	10/20/98	F-10/20-01	1, 2, 3	ERM-FAST
Soil Pile	10/20/98	F-10/20-02	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	F-100-B	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-100-B	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-11	1, 2, 3	ERM-FAST
Soil Pile	10/19/98	F-12	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	F-120-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-120-SW-S	1, 2, 3	ERM-FAST
Soil Pile	10/20/98	F-12Z	1, 2, 3	ERM-FAST
Soil Pile	10/20/98	F-13	1, 2, 3	ERM-FAST
Soil Pile	10/20/98	F-14	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-150-B	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-150-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/20/98	F-180-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	F-30-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	F-50-B	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-50-B	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	F-60-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-60-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-60-SW-N DUP	1, 2, 3	ERM-FAST
Post-Ex	10/12/98	F-90-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/19/98	F-90-SW-S	1, 2, 3	ERM-FAST
Post-Ex	9/15/98	FB-01	1, 2, 3	ERM-FAST
Post-Ex	9/15/98	FB-02	1, 2, 3	ERM-FAST
Post-Ex	9/15/98	FB-03	1, 2, 3	ERM-FAST
Post-Ex	9/15/98	FB-04	1, 2, 3	ERM-FAST
Post-Ex	9/16/98	FSW-E	1, 2, 3	ERM-FAST
Post-Ex	9/16/98	FSW-S	1, 2, 3	ERM-FAST
Post-Ex	9/16/98	FSW-W	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G-01	1, 2, 3	ERM-FAST
Soil Pile	9/17/98	G'-01	1, 2	ERM-FAST
Soil Pile	8/19/98	G-01	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G-02	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	G'-02	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	8/20/98	G-02	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-03	1, 2, 3	ERM-FAST
Soil Pile	10/16/98	G'-03	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-03	1, 3	ERM-FAST
Soil Pile	10/21/98	G""-03 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-04	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-04	1, 3	ERM-FAST
Soil Pile	10/21/98	G""-05	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-05	1, 3	ERM-FAST
Soil Pile	10/21/98	G""-06	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-06	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-07	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-07	1, 3	ERM-FAST
Soil Pile	10/21/98	G""-08	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-08	1, 3	ERM-FAST
Soil Pile	10/21/98	G""-09	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-09	1, 2, 3	ERM-FAST
Soil Pile	1/6/99	G-1/6-01	1, 2, 3	ERM-FAST
Soil Pile	1/6/99	G-1/6-02	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-10	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-10	1, 3	ERM-FAST
Soil Pile	10/14/98	G-10/14-01	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-10/14-02	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-10/14-03	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-10/14-04	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-10/14-05	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-10/14-06	1, 2, 3	ERM-FAST
Soil Pile	10/15/98	G-10/15-01	1, 2, 3	ERM-FAST
Soil Pile	10/15/98	G-10/15-02	1, 2, 3	ERM-FAST
Soil Pile	10/15/98	G-10/15-03	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	G-10/15-04	1, 2, 3	ERM-FAST
Soil Pile	12/16/98	G-10/15-05	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-10/21-01	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-10/21-02	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-10/21-03	1, 2, 3	ERM-FAST
Soil Pile	10/21/98	G""-10/21-04	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G""-100-B	1, 2, 3	ERM-FAST
Post-Ex	8/20/98	G-100B	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	8/20/98	G-11	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-12	1, 2, 3	ERM-FAST
Soil Pile	8/20/98	G-12 DUP	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G-120-SW-S	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-13	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-14	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G-145-B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G-145-SW	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-15	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G-150-B	1, 2, 3	ERM-FAST
Post-Ex	8/20/98	G-150B	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G-150-SW-N	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-16	1, 2, 3	ERM-FAST
Post-Ex	10/15/98	G-165-B	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-17	1, 2, 3	ERM-FAST
Post-Ex	10/15/98	G-170-SW-S	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-18	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-19	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-20	1, 2, 3	ERM-FAST
Post-Ex	8/20/98	G-200B	1, 3	ERM-FAST
Post-Ex	10/15/98	G-200-SW-N	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-21	1, 2, 3	ERM-FAST
Post-Ex	10/15/98	G-211-B	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-22	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-23	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-230-SW-W	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-24	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-24 DUP	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-25	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-250-B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G-25-B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G-25-SW	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-26	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-260-SW-E	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-27	1, 2, 3	ERM-FAST
Soil Pile	10/14/98	G-28	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-290-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	G-292-B	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	10/14/98	G-300-B	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G'''-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	G'-310-SW-S	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-320-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	G'-334-SW-N	1, 2, 3	ERM-FAST
Post-Ex	10/16/98	G'-345-B	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-350-B	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-350-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/7/99	G-350-SW-W2	2	ERM-FAST
Post-Ex	10/14/98	G-350-SW-WA	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-380-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-400-B	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-410-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/15/98	G'-42-Pipe	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-440-SW-E	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-450B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G'-45-B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G'-45-SW	1, 2, 3	ERM-FAST
Post-Ex	10/14/98	G-470-SW-W	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G'''-50-B	1, 2, 3	ERM-FAST
Post-Ex	8/20/98	G-50B	1, 2, 3	ERM-FAST
Post-Ex	10/21/98	G'''-60-SW-S	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G'-65-B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G'-65-SW	1, 2, 3	ERM-FAST
Soil Pile	9/17/98	G'-9/16-02	1,2	ERM-FAST
Soil Pile	9/17/98	G'-9/17-01	1,2	ERM-FAST
Soil Pile	9/17/98	G'-9/17-02	1,2	ERM-FAST
Soil Pile	9/17/98	G'-9/17-02 DUP	1,2	ERM-FAST
Post-Ex	10/21/98	G'''-90-SW-S	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G'-95-B	1, 2, 3	ERM-FAST
Post-Ex	9/17/98	G'-95-SW	1, 2, 3	ERM-FAST
Post-Ex	1/6/99	Gmanhole 01	1, 2, 3	ERM-FAST
Soil Pile	9/2/98	OBF-01	1, 2, 3	ERM-FAST
Soil Pile	9/2/98	OBF-02	1, 2, 3	ERM-FAST
Soil Pile	9/2/98	OBF-03	1, 2, 3	ERM-FAST
Soil Pile	9/2/98	OBF-04	1, 2, 3	ERM-FAST
Soil Pile	9/2/98	OBF-05	1, 2, 3	ERM-FAST
Pre-Ex	9/8/98	PE-01	1,2	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Pre-Ex	10/13/98	PE-02	1, 2, 3	ERM-FAST
Soil Pile	1/26/99	Pit-1/26-01	1, 2, 3	ERM-FAST
Soil Pile	1/26/99	Pit-1/26-02	1, 2, 3	ERM-FAST
Soil Pile	1/26/99	Pit-1/26-03	1, 2, 3	ERM-FAST
Soil Pile	1/26/99	Pit-1/26-04	1, 2, 3	ERM-FAST
Soil Pile	10/28/98	PIT-10/28-01	1, 2, 3	ERM-FAST
Soil Pile	10/28/98	PIT-10/28-02	1, 2, 3	ERM-FAST
Soil Pile	11/3/98	PIT-2-11/31-01	1, 2, 3	ERM-FAST
Soil Pile	11/3/98	PIT-2-11/31-02	1, 2, 3	ERM-FAST
Soil Pile	11/3/98	PIT-2-11/31-03	1, 2, 3	ERM-FAST
Post-Ex	11/3/98	PIT-2-B	1, 2, 3	ERM-FAST
Post-Ex	11/3/98	PIT-2-pipe	1, 2, 3	ERM-FAST
Post-Ex	11/3/98	PIT-2-SW-E	1, 2, 3	ERM-FAST
Post-Ex	11/3/98	PIT-2-SW-N	1, 2, 3	ERM-FAST
Post-Ex	11/3/98	PIT-2-SW-S	1, 2, 3	ERM-FAST
Post-Ex	11/3/98	PIT-2-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/26/99	Pit3-B	1, 2, 3	ERM-FAST
FYI	1/26/99	Pit3-Black	1, 2, 3	ERM-FAST
Post-Ex	1/26/99	Pit3-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/26/99	Pit3-SW-N	1, 2, 3	ERM-FAST
Post-Ex	1/26/99	Pit3-SW-S	1, 2, 3	ERM-FAST
Post-Ex	1/26/99	Pit3-SW-W	1, 2, 3	ERM-FAST
Soil Pile	1/27/99	Pit4-1/27-01	1, 2, 3	ERM-FAST
Soil Pile	1/27/99	Pit4-1/27-02	1, 2, 3	ERM-FAST
Soil Pile	1/27/99	Pit4-1/27-03	1, 2, 3	ERM-FAST
Soil Pile	1/27/99	Pit4-1/27-04	1, 2, 3	ERM-FAST
Post-Ex	1/27/99	Pit4-B	1, 2, 3	ERM-FAST
Post-Ex	1/27/99	Pit4-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/27/99	Pit4-SW-N	1, 2, 3	ERM-FAST
Post-Ex	1/27/99	Pit4-SW-S	1, 2, 3	ERM-FAST
Post-Ex	1/27/99	Pit4-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/27/99	Pit4-SW-W DUP	1, 2, 3	ERM-FAST
Post-Ex	9/8/98	PN-01	1, 2	ERM-FAST
Post-Ex	10/13/98	PN-02	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	Pond-2/8-01	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	Pond-2/8-02	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	Pond-2/8-03	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	Pond-2/8-04	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	2/8/99	Pond-2/8-05	1, 2, 3	ERM-FAST
Soil Pile	2/9/99	Pond-2/9-01	1, 2, 3	ERM-FAST
Soil Pile	2/9/99	Pond-2/9-02	1, 2, 3	ERM-FAST
Soil Pile	2/9/99	Pond-2/9-03	1, 2, 3	ERM-FAST
Post-Ex	1/13/99	Pond-B-02	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	Pond-B-03	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-B-04	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-B-05	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-B-06	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-B-07	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-B-08	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-B-7-02	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-B-8-02	1, 2, 3	ERM-FAST
FYI	2/9/99	Pond-Black-01	1, 2, 3	ERM-FAST
FYI	2/9/99	Pond-Black-02	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-N-02	1, 2, 3	ERM-FAST
Post-Ex	1/13/99	Pond-SWE-01	1, 2, 3	ERM-FAST
Post-Ex	1/13/99	Pond-SWE-01 DUP	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-E-02	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-E-03	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-E-04	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-SW-E-4-02	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-N	1, 2, 3	ERM-FAST
Post-Ex	1/13/99	Pond-SWW-01	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-W-02	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-W-03	1, 2, 3	ERM-FAST
Post-Ex	1/22/99	Pond-SW-W-04	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-SW-W-2-02	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-SW-W-3-02	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	Pond-SW-W-4-02	1, 2, 3	ERM-FAST
Pre-Ex	9/8/98	PS-01	1,2	ERM-FAST
Pre-Ex	10/13/98	PS-02	1, 2, 3	ERM-FAST
Pre-Ex	9/8/98	PW-01	1,2	ERM-FAST
Pre-Ex	9/8/98	PW-02	1,2	ERM-FAST
Pre-Ex	10/13/98	PW-02	1, 2, 3	ERM-FAST
Post-Ex	3/29/99	SEP-78-B	1, 2, 3	ERM-FAST
Post-Ex	3/29/99	SEP-78-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/29/99	SEP-78-SW-N	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	3/29/99	SEP-78-SW-S	1, 2, 3	ERM-FAST
Post-Ex	3/29/99	SEP-78-SW-W	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-01	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-02	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-03	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-04	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-05	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-06	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-07	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SS-1/19-07 DUP	1, 2, 3	ERM-FAST
Soil Pile	1/20/99	SS-1/20-01	1, 2, 3	ERM-FAST
Soil Pile	1/20/99	SS-1/20-02	1, 2, 3	ERM-FAST
Soil Pile	1/20/99	SS-1/20-03	1, 2, 3	ERM-FAST
Soil Pile	1/20/99	SS-1/20-04	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-01	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-02	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-03	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-04	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-05	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-05 DUP	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SS-1/21-06	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	SS-1/25-01	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	SS-1/25-02	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	SS-1/25-03	1, 2, 3	ERM-FAST
Soil Pile	1/25/99	SS-1/25-04	1, 2, 3	ERM-FAST
Soil Pile	2/15/99	SS-2/15-01	1, 2, 3	ERM-FAST
Soil Pile	2/15/99	SS-2/15-02	1, 2, 3	ERM-FAST
Soil Pile	2/15/99	SS-2/15-03	1, 2, 3	ERM-FAST
Soil Pile	2/22/99	SS-2/22-01	1, 2, 3	ERM-FAST
Soil Pile	2/22/99	SS-2/22-02	1, 2, 3	ERM-FAST
Soil Pile	2/23/99	SS-2/23-01	1, 2, 3	ERM-FAST
Soil Pile	2/23/99	SS-2/23-02	1, 2, 3	ERM-FAST
Soil Pile	2/22/99	SS-2/23-03	1, 2, 3	ERM-FAST
Soil Pile	2/23/99	SS-2/23-03	1, 2, 3	ERM-FAST
Soil Pile	2/24/99	SS-2/24-01	1, 2, 3	ERM-FAST
Soil Pile	2/24/99	SS-2/24-02	1, 2, 3	ERM-FAST
Soil Pile	2/24/99	SS-2/24-03	1, 2, 3	ERM-FAST
Soil Pile	2/25/99	SS-2/25-01	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	2/25/99	SS-2/25-02	1, 2, 3	ERM-FAST
Soil Pile	2/25/99	SS-2/25-03	1, 2, 3	ERM-FAST
Soil Pile	2/3/99	SS-2/3-01	1, 2, 3	ERM-FAST
Soil Pile	2/3/99	SS-2/3-02	1, 2, 3	ERM-FAST
Soil Pile	2/3/99	SS-2/3-03	1, 2, 3	ERM-FAST
Soil Pile	2/3/99	SS-2/3-04	1, 2, 3	ERM-FAST
Soil Pile	2/3/99	SS-2/3-05	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/4-01	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/4-02	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/4-03	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/4-04	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/4-05	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/5-01	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/5-02	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/5-03	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/5-04	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SS-2/5-05	1, 2, 3	ERM-FAST
Soil Pile	2/9/99	SS-2/9-01	1, 2, 3	ERM-FAST
Soil Pile	2/9/99	SS-2/9-02	1, 2, 3	ERM-FAST
Soil Pile	2/9/99	SS-2/9-02 DUP	1, 2, 3	ERM-FAST
Soil Pile	3/10/99	SS-3/10-01	1, 2, 3	ERM-FAST
Soil Pile	3/10/99	SS-3/10-02	1, 2, 3	ERM-FAST
Soil Pile	3/10/99	SS-3/10-03	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SS-3/1-01	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SS-3/1-02	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SS-3/1-03	1, 2, 3	ERM-FAST
Soil Pile	3/11/99	SS-3/11/1	1, 2, 3	ERM-FAST
Soil Pile	3/11/99	SS-3/11/2	1, 2, 3	ERM-FAST
Soil Pile	3/11/99	SS-3/11/3	1, 2, 3	ERM-FAST
Soil Pile	3/2/99	SS-3/2-01	1, 2, 3	ERM-FAST
Soil Pile	3/2/99	SS-3/2-02	1, 2, 3	ERM-FAST
Soil Pile	3/2/99	SS-3/2-03	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-01	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-01A	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-02	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-03	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-04	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-05	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	1/19/99	SSA-06	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSA-07	1, 2, 3	ERM-FAST
Post-Ex	1/20/99	SSA-0-B	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-100-B	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-120-SW-S	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-150-B	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-150-SW-N	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-180-SW-S	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-200-B	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-210-SW-N	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-30-SW-S	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-50-B	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSA-60-SW-N	1, 2, 3	ERM-FAST
FYI	1/19/99	SSA-Black	1, 2, 3	ERM-FAST
Soil Pile	1/19/99	SSB-01	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSB-0-B	1, 2, 3	ERM-FAST
Soil Pile	1/28/99	SSB-1/28-01	1, 2, 3	ERM-FAST
Soil Pile	1/28/99	SSB-1/28-02	1, 2, 3	ERM-FAST
Post-Ex	1/19/99	SSB-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/28/99	SSB-50-B	1, 2, 3	ERM-FAST
Post-Ex	1/28/99	SSB-60-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/20/99	SSC-30-SW-W	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-01	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-02	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-03	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-04	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-04 DUP	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-05	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-06	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-07	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-08	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-09	1, 2, 3	ERM-FAST
Soil Pile	1/28/99	SSD-1/27-01	1, 2, 3	ERM-FAST
Soil Pile	1/28/99	SSD-1/27-02	1, 2, 3	ERM-FAST
Soil Pile	1/28/99	SSD-1/28-01	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-10	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-100-B	1, 2, 3	ERM-FAST
Post-Ex	1/28/99	SSD-100-B2	1, 2, 3	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Soil Pile	1/21/99	SSD-11	1, 2, 3	ERM-FAST
Soil Pile	1/21/99	SSD-12	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-120-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSD-120-SW-E2	2	ERM-FAST
Post-Ex	2/15/99	SSD-120-SW-E3	2	ERM-FAST
Post-Ex	3/2/99	SSD-120-SW-E4	2	ERM-FAST
Post-Ex	3/9/99	SSD-120-SW-E5	2	ERM-FAST
Soil Pile	2/1/99	SSD-13	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-150-B	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSD-150-B2	2	ERM-FAST
Post-Ex	2/8/99	SSD-150-SW-E2	2	ERM-FAST
Post-Ex	1/21/99	SSD-150-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-180-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/28/99	SSD-180-SW-E2	1	ERM-FAST
Soil Pile	2/1/99	SSD-2/1-01	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSD-2/1-02	1, 2, 3	ERM-FAST
Soil Pile	2/25/99	SSD-2/25-01	1, 2, 3	ERM-FAST
Soil Pile	2/25/99	SSD-2/25-02	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SSD-2/8-01	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SSD-2/8-02	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SSD-2/8-03	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SSD-2/8-04	1, 2, 3	ERM-FAST
Soil Pile	2/8/99	SSD-2/8-05	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-200-B	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSD-200-B2	2	ERM-FAST
Post-Ex	1/21/99	SSD-210-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-240-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-250-B	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-270-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-270-SW-W DUP	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-300-B	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-300-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSD-30-SW-E2	2	ERM-FAST
Post-Ex	1/21/99	SSD-30-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-330-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-335-B	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-350-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSD-360-SW-E	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	2/1/99	SSD-390-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSD-400-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSD-420-SW-E	1, 2, 3	ERM-FAST
Post-Ex	1/21/99	SSD-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSD-50-B2	2	ERM-FAST
Post-Ex	1/21/99	SSD-60-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSD-60-SW-E2	2	ERM-FAST
Post-Ex	2/8/99	SSD-90-SW-E2	2	ERM-FAST
Post-Ex	1/21/99	SSD-90-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/25/99	SSE-30-SW-W	1, 2, 3	ERM-FAST
Post-Ex	1/25/99	SSE-50-B	1, 2, 3	ERM-FAST
Post-Ex	1/25/99	SSE-60-SW-W	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSF-01	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSF-02	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSF-03	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSF-0-B	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSF-2/1-01	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSF-2/1-02	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSF-2/1-03	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSF-30-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSF-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSF-60-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSF-60-SW-E DUP	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	SSG-0-B2	2	ERM-FAST
Post-Ex	2/1/99	SSG-100-B	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	SSG-100-B2	2	ERM-FAST
Post-Ex	2/1/99	SSG-120-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-150-B	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	SSG-150-B2	2	ERM-FAST
Post-Ex	2/1/99	SSG-150-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-180-SW-S	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSG-2/1-01	1, 2, 3	ERM-FAST
Soil Pile	2/1/99	SSG-2/1-02	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-200-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-210-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-240-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-250-B	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	2/1/99	SSG-270-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-300-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-300-B DUP	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	SSG-300-B2	2	ERM-FAST
Post-Ex	2/1/99	SSG-300-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	SSG-30-SW-N2	2	ERM-FAST
Post-Ex	2/9/99	SSG-30-SW-N2 DUP	2	ERM-FAST
Post-Ex	2/1/99	SSG-330-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/9/99	SSG-330-SW-N2	2	ERM-FAST
Post-Ex	2/1/99	SSG-350-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-360-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-390-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-400-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSG-420-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSG-420-SW-S DUP	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSG-450-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSG-450-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-60-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/1/99	SSG-90-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-100-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-120-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-150-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-150-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-180-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-200-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-210-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSH-250-B	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSH-250-B DUP	1, 2, 3	ERM-FAST
Post-Ex	2/15/99	SSH-250-B2	2	ERM-FAST
Post-Ex	2/8/99	SSH-250-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/15/99	SSH-250-SW-S2	2	ERM-FAST
Post-Ex	2/3/99	SSH-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-60-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/3/99	SSH-90-SW-N	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2

Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	2/4/99	SSI-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSI-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSI-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSI-60-SW-S	1, 2, 3	ERM-FAST
Soil Pile	2/5/99	SSJ-01	1, 2, 3	ERM-FAST
Soil Pile	2/5/99	SSJ-02	1, 2, 3	ERM-FAST
Soil Pile	2/5/99	SSJ-03	1, 2, 3	ERM-FAST
Post-Ex	2/5/99	SSJ-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-100-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-100-B DUP	1, 2, 3	ERM-FAST
Post-Ex	2/17/99	SSJ-100-B2	1	ERM-FAST
Post-Ex	2/4/99	SSJ-120-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-150-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-150-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-180-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-200-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-210-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-240-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-250-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-270-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-300-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-300-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/5/99	SSJ-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-60-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/4/99	SSJ-90-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/5/99	SSK-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSK-30-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/8/99	SSK-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-100-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-120-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-150-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-150-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-50-B DUP	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSL-60-SW-S	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	2/26/99	SSL-60-SW-S2	2	ERM-FAST
Post-Ex	2/22/99	SSL-90-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSM-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSM-100-B	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-120-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-150-B	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-150-B DUP	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-150-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-180-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-200-B	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-210-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-240-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/26/99	SSM-240-SW-S2	2	ERM-FAST
Post-Ex	3/3/99	SSM-240-SW-S3	2	ERM-FAST
Post-Ex	2/23/99	SSM-250-B	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-270-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/26/99	SSM-270-SW-N2	2	ERM-FAST
Post-Ex	3/3/99	SSM-270-SW-N3	2	ERM-FAST
Post-Ex	3/9/99	SSM-270-SW-N4	2	ERM-FAST
Post-Ex	2/23/99	SSM-272-B	1, 2, 3	ERM-FAST
Post-Ex	3/4/99	SSM-272-B2	2	ERM-FAST
Post-Ex	3/9/99	SSM-272-B3	2	ERM-FAST
Post-Ex	2/23/99	SSM-300-B	1, 2, 3	ERM-FAST
Post-Ex	2/23/99	SSM-300-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSM-30-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/26/99	SSM-30-SW-N2	2	ERM-FAST
Post-Ex	2/23/99	SSM-330-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSM-50-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSM-60-SW-S	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSM-90-SW-N	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	SSN-15-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	SSN-30-B	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	SSN-7-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	SSO-0-B	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	SSO-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/25/99	SSO-50-B	1, 2, 3	ERM-FAST
Post-Ex	3/3/99	SSO-50-B2	2	ERM-FAST
Post-Ex	3/9/99	SSO-50-B3	2	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	2/25/99	SSO-60-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/24/99	SSO-85-B	1, 2, 3	ERM-FAST
Post-Ex	3/3/99	SSO-85-B2	2	ERM-FAST
Soil Pile	3/1/99	SSP-01	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SSP-02	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SSP-03	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SSP-04	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SSP-05	1, 2, 3	ERM-FAST
Soil Pile	3/1/99	SSP-06	1, 2, 3	ERM-FAST
Soil Pile	3/2/99	SSP-07	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-0-B	1, 2, 3	ERM-FAST
Post-Ex	3/3/99	SSP-0-B2	2	ERM-FAST
Post-Ex	3/1/99	SSP-100-B	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-120-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-150-B	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-150-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-180-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-200-B	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-200-SW-E DUP	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-210-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-250-B	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-30-SW-E DUP	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-50-B	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-60-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/1/99	SSP-90-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/3/99	SSP-90-SW-E2	2	ERM-FAST
FYI	3/2/99	SSP-Gray-01	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-Pit-B	1, 2, 3	ERM-FAST
Post-Ex	3/5/99	SSP-Pit-B2	1,2	ERM-FAST
Post-Ex	3/2/99	SSP-Pit-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-Pit-SW-N	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-Pit-SW-S	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSP-Pit-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSQ-0-B	1, 2, 3	ERM-FAST
Post-Ex	3/5/99	SSQ-0-B2	2	ERM-FAST
Post-Ex	3/2/99	SSQ-15-SW-N	1, 2, 3	ERM-FAST
Post-Ex	3/5/99	SSQ-15-SW-N2	2	ERM-FAST

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: Arsenic, Cadmium, and Thallium Only
- 5: TCL PCBs
- 6: TCL Pesticides
- 7: Dioxin

Table 3-2

Sewer Excavation Sample Summary

Givaudan Roure Corporation

Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	3/2/99	SSQ-30-SW-S	1, 2, 3	ERM-FAST
Post-Ex	3/5/99	SSQ-30-SW-S2	2	ERM-FAST
Post-Ex	3/9/99	SSQ-30-SW-S3	2	ERM-FAST
Post-Ex	3/2/99	SSR-0-B	1, 2, 3	ERM-FAST
Post-Ex	3/5/99	SSR-0-B2	2	ERM-FAST
Post-Ex	3/9/99	SSR-0-B3	2	ERM-FAST
Post-Ex	3/2/99	SSR-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/9/99	SSR-30-SW-E2	2	ERM-FAST
Post-Ex	3/2/99	SSR-50-B	1, 2, 3	ERM-FAST
Post-Ex	3/2/99	SSR-60-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-0-B	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-0-B2	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-100-B	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-100-B2	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-120-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-150-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-150-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-150-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-180-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-200-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-200-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-210-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-210-SW-E DUP	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-240-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-250-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-250-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-270-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-300-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-300-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-300-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-30-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-330-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-350-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-350-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-360-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-390-SW-E	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-400-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-400-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-420-SW-W	1, 2, 3	ERM-FAST

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-2
Sewer Excavation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis	Lab
Post-Ex	2/22/99	SSZ-450-B	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-450-B2	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-450-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/11/99	SSZ-480-SW-W	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-496-B	1, 2, 3	ERM-FAST
Post-Ex	2/22/99	SSZ-50-B	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-50-B2	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-60-SW-W	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-60-SW-W DUP	1, 2, 3	ERM-FAST
Post-Ex	3/10/99	SSZ-90-SW-E	1, 2, 3	ERM-FAST
Post-Ex	4/6/99	SSZ-Outfall-N	1, 2, 3	ERM-FAST
Post-Ex	4/6/99	SSZ-Outfall-S	1, 2, 3	ERM-FAST
Soil Pile	3/31/99	Tank-3/31-01	1, 2, 3	ERM-FAST
Soil Pile	3/31/99	Tank-3/31-02	1, 2, 3	ERM-FAST
Post-Ex	3/31/99	Tank-B	1, 2, 3	ERM-FAST
Post-Ex	3/3/99	Tank-J	1,2	ERM-FAST
Post-Ex	3/31/99	Tank-SW-E	1, 2, 3	ERM-FAST
Post-Ex	3/31/99	Tank-SW-N	1, 2, 3	ERM-FAST
Post-Ex	3/31/99	Tank-SW-S	1, 2, 3	ERM-FAST
Post-Ex	3/31/99	Tank-SW-W	1, 2, 3	ERM-FAST

Notes:

Pre-Ex: Pre-Excavation Sample

Post-Ex: Post-Excavation Sample

Soil Pile: Sample taken from excavated soil

FYT: Soil Samples taken from uncommon looking or potentially affected soil

1: TCL VOCs

2: TCL SVOCs

3: TAL Metals

4: Arsenic, Cadmium, and Thallium Only

5: TCL PCBs

6: TCL Pesticides

7: Dioxin

Table 3-3
Post-Excavation Sample Summary Building 9 Tanks
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis
Post-Ex	11/3/99	B9-Tank-1-1	1,2,4
Post-Ex	11/3/99	B9-Tank-1-2	1,2,4
Post-Ex	11/3/99	B9-Tank-1-3	1,2,4
Post-Ex	11/3/99	B9-Tank-1-4	1,2,4
Post-Ex	11/3/99	B9-Tank-1-5	1,2,4
Post-Ex	11/3/99	B9-Tank-1-6	1,2,4
Post-Ex	11/3/99	B9-Tank-1-7	1,2,4
Post-Ex	11/3/99	B9-Tank-1-8	1,2,4
Post-Ex	11/3/99	B9-Tank-2-1	1,2,4
Post-Ex	11/3/99	B9-Tank-2-2	1,2,4
Post-Ex	11/3/99	B9-Tank-2-3	1,2,4
Post-Ex	11/3/99	B9-Tank-2-4	1,2,4
Post-Ex	11/3/99	B9-Tank-2-5	1,2,4
Post-Ex	11/3/99	B9-Tank-2-6	1,2,4
Post-Ex	11/3/99	B9-Tank-2-7	1,2,4
Post-Ex	11/3/99	B9-Tank-2-8	1,2,4
Post-Ex	11/3/99	B9-Tank-3-1	1,2,4
Post-Ex	11/3/99	B9-Tank-3-2	1,2,4
Post-Ex	11/3/99	B9-Tank-3-3	1,2,4
Post-Ex	11/3/99	B9-Tank-3-3A	1,2,4
Post-Ex	11/3/99	B9-Tank-3-4	1,2,4
Post-Ex	11/3/99	B9-Tank-3-5	1,2,4
Post-Ex	11/3/99	B9-Tank-3-6	1,2,4
Post-Ex	11/3/99	B9-Tank-3-7	1,2,4
Post-Ex	11/3/99	B9-Tank-3-8	1,2,4
Post-Ex	11/3/99	B9-Tank-4-1	1,2,4
Post-Ex	11/3/99	B9-Tank-4-2	1,2,4
Post-Ex	11/3/99	B9-Tank-4-3	1,2,4
Post-Ex	11/3/99	B9-Tank-4-4	1,2,4

1: TCL VOCs
2: TCL SVOCs
3: TAL Metals
4: a-Pinene

Table 3-3
Post-Excavation Sample Summary Building 9 Tanks
Givaudan Roure Corporation
Clifton, New Jersey

Type	Date Collected	Sample ID	Analysis
Post-Ex	11/3/99	B9-Tank-4-5	1,2,4
Post-Ex	11/3/99	B9-Tank-4-6	1,2,4
Post-Ex	11/3/99	B9-Tank-4-7	1,2,4
Post-Ex	11/3/99	B9-Tank-4-8	1,2,4
Post-Ex	11/3/99	B9-Tank-4-8A	1,2,4
Soil Pile	10/7/99	B9-UST-P-1	1,2,3
Soil Pile	10/7/99	B9-UST-P-2	1,2,3
Soil Pile	10/7/99	B9-UST-P-3	1,2,3
Soil Pile	10/7/99	B9-UST-P-3 DUP	3
Soil Pile	10/7/99	B9-UST-P-4	1,2,3
Soil Pile	10/7/99	B9-UST-P-4A	1,2,3
Soil Pile	10/7/99	B9-UST-P-5	1,2,3
Soil Pile	10/7/99	B9-UST-P-6	1,2,3

Note: All TAL Metals analysis performed by Severn Trent Laboratories (STL) and all TCL SVOCs and TCL VOCs analysis performed by ERM-FAST Lab.

- 1: TCL VOCs
- 2: TCL SVOCs
- 3: TAL Metals
- 4: a-Pinene

Section 4

During the sewer excavation several lengths of old chemical sewer or stormwater sewer were not accessible. In most cases, inaccessible sewers ran under buildings that had not been demolished, or were located in an area that was not accessible due to demolition debris. Based on the demolition schedule at the time the excavation activities were concluding, it was decided that the remaining sewer lines would be investigated in-place as a supplemental investigation.

4.1

SOIL BORING INSTALLATION

To evaluate the remaining underground lines, soil samples were collected from a total of 65 soil borings. In the interest of consistency, the sample location names continued in sequence where the previous chemical sewer investigation stopped. The first part of each sample identification designates the sewer line coupled with the length along the line from a referenced starting point (i.e., C-710). The second part of the sample identification designates the depth from which the soil sample was collected (i.e., (2.5-3.0)).

Using a Hurricane Dual Sampling System provided by Environmental Probing Investigations (EPI) of Doylestown, Pennsylvania, a minimum of two soil samples were collected from each boring location at depths corresponding to 0.0 to 0.5 feet and 3.5 to 4.0 feet below the invert elevation of the sewer line. Consistent with the Technical Requirements, one boring was advanced for every 15 linear feet of piping (or portions thereof) along sewer lines that were less than or equal to 50 linear feet. For sewer lines with piping lengths greater than 50 linear feet, one boring was advanced for every 50 feet of piping. The soil borings were advanced within 2 feet (laterally) of the sewer lines. If refusal was encountered in the original boring location, the boring was relocated to an adjacent location the least possible distance from the original boring. The sample locations, which satisfy the frequency requirements within the Technical Requirements, were also biased toward joints and other potential discharge areas. The supplemental investigation soil boring locations are shown on Plate 2.

SOIL SAMPLING PROCEDURES AND ANALYSIS

Soil samples were collected using methods consistent with those provided in the *Field Sampling Procedures Manual* (NJDEP, 1992) and EPA Method 5035. From each sample, the bottles required for organics analysis were collected and delivered to ERM FAST for analysis of TCL VOCs and SVOCs. One 4 oz jar (per sample) was shipped to Severn Trent Laboratories (STL), formerly Core Labs/GSA, for TAL metals analysis.

Soil samples collected from 3.5 to 4.0 feet below the sewer invert elevation were submitted to the respective laboratories, but were held for analysis until the results of the sample collected from the 0.0 to 0.5 foot interval was analyzed. In the event that one or more samples, collected from 0.0 to 0.5 feet below sewer inverts, contained constituents that exceeded the more stringent of the RDCSCC/IGWSCC, a request was made to analyze the deeper sample interval for the parameter list from which the exceedance was detected.

For each set of 20 samples, a blind duplicate, a matrix spike (MS), and a matrix spike duplicate (MSD) were collected. In addition, a trip blank (unused methanol preserved bottle) was submitted with every cooler that contained samples designated for VOC analysis.

POST SAMPLING PROCEDURES

Decontamination of the stainless steel sampling tube was not necessary between borings. Dedicated acetate sleeves (one per sample) were used during sample collection. The stainless steel drive shoe, which contacts the soil as the boring is advanced, was decontaminated between samples using the required 9-step decontamination method as described in the *Field Sampling Procedures Manual* (NJDEP, 1992).

Leftover soil cuttings were used to partially backfill the borehole from which they were removed. Any remaining open interval was backfilled using bentonite pellets. Pinflags, labeled with the appropriate boring IDs, were placed in the backfilled excavation to mark the boring location. All boring locations were surveyed shortly following the supplemental investigation by a New Jersey licensed surveyor.

Table 4-1
Supplemental Sewer Investigation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID/Depth Interval	Date Collected	Analysis	Comments
C-620(2.0-2.5)	10/21/99	1,2,3	
C-660(2.0-2.5)	10/21/99	1,2,3	sample jar broken upon arrival to STL
C-660(5.5-6.0)	10/21/99	3	
C-710(2.5-3.0)	10/20/99	1,2, Chromium	
C-710(6.0-6.5)	10/20/99	1,3	
C'-30(2.5-3.0)	10/20/99	1,2,Cadmium	
C'-30(6.0-6.5)	10/20/99	1,3	
C'-65(2.5-3.0)	10/20/99	1,2,3	
C'-110(2.5-3.0)	10/20/99	1,2,3	
C'-110(2.5-3.0)BD	10/20/99	3	
C'-110(6.0-6.5)	10/20/99	2,Cadmium	
C'-135(3.0-3.5)	10/20/99	1,2,3	
C'-135(6.5-7.0)	10/20/99	2	
C'-160(3.0-3.5)	10/20/99	1,2,3	
C'-160(6.5-7.0)	10/20/99	Cadmium	
C''-30(3.0-3.5)	10/22/99	1,2,3	
C''-30(3.0-3.5)BD	10/22/99	3	
C''-60(3.0-3.5)	10/22/99	1,2,3	
C''-85(3.0-3.5)	10/22/99	1,2,3	
C''-110(2.5-3.0)	10/22/99	1,2,3	
C''-155(2.5-3.0)	10/21/99	1,2,3	
C''-195(2.5-3.0)	10/21/99	1,2,3	
C''-195(6.0-6.5)	10/21/99	3	
C'''-00(2.5-3.0)	10/20/99	1,2,3	
C'''-00(2.5-3.0)2	10/20/99	1,2,3	
C'''-20(2.5-3.0)	10/21/99	1,2,3	
C'''-40(2.5-3.0)	10/21/99	1,2,3	
C'''-40(2.5-3.0)BD	10/21/99	3	
C'''-55(2.5-3.0)	10/21/99	1,2,3	
C'''-55(2.5-3.0)BD	10/21/99	1,2	
C''''-10(3.0-3.5)	10/22/99	1,2,3	
C''''-30(6.0-6.5)	10/20/99	1,2,3	

1: TCL VOCs (ERM-FAST Lab)

2: TCL SVOCs (ERM-FAST Lab)

3: TAL Metals (Severn Trent Labs (STL))

Table 4-1
Supplemental Sewer Investigation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID/Depth Interval	Date Collected	Analysis	Comments
C''''-75(2.0-2.5)	10/20/99	1,2,3	
C''''-75(5.5-6.0)	10/20/99	2	
C''''-20(2.5-3.0)	10/20/99	1,2,3	
C''''-20(6.0-6.5)	10/20/99	1	
C''''-40(2.0-2.5)	10/20/99	1,2,3	
C''''-60(2.0-2.5)	10/20/99	1,2,3	
C''''-15(2.5-3.0)	10/20/99	1,2,3	
C''''-15(2.5-3.0)BD	10/20/99	1,2	
C''''-15(6.0-6.5)	10/20/99	Cadmium	
G'-261(5.5-6.0)	10/25/99	1,2,3	
G'-261(5.5-6.0)BD	10/25/99	3	
G'-226(5.5-6.0)	10/25/99	1,2,3	
G'-226(5.5-6.0)BD	10/25/99	1,2	
G'-158(4.5-5.0)	10/25/99	1,2,3	
G'-118(4.5-5.0)	10/25/99	1,2,3	
G'-118(7.0-7.5)	10/25/99	Arsenic	
G'-78(2.5-3.0)	10/25/99	1,2,Arsenic, Thallium	
G'-78(7.5-8.0)	10/25/99	3	
G''-15(3.5-4.0)	10/22/99	1,2,3	
G'''-20(5.5-6.0)	10/22/99	1,2,3	
G'''-43(4.5-5.0)	10/22/99	1,2,3	
G'''-43(4.5-5.0)BD	10/22/99	3	
G'''-43(8.0-8.5)	10/22/99	Lead	
G'''-63(4.5-5.0)	10/22/99	1,2,3	
G'''-88(4.0-4.5)	10/22/99	1,2,3	
G'''-88(4.0-4.5)BD	10/22/99	1,2	
G'''-103(3.5-4.0)	10/22/99	1,2,3	
G'''-128(3.5-4.0)	10/22/99	1,2,3	
G'''-158(3.0-3.5)	10/22/99	1,2,3	
G'''-158(6.5-7.0)	10/22/99	1	
G''''-95(4.0-4.5)	10/19/99	1,2,3	
G''''-130(3.5-4.0)	10/20/99	1,2,3	

- 1: TCL VOCs (ERM-FAST Lab)
2: TCL SVOCs (ERM-FAST Lab)
3: TAL Metals (Severn Trent Labs (STL))

Table 4-1
Supplemental Sewer Investigation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID/Depth Interval	Date Collected	Analysis	Comments
G'''-200(6.5-7.0)	10/22/99	1,2,3	
G'''-240(4.0-4.5)	10/22/99	1,2,3	
G'''-240(4.0-4.5)BD	10/22/99	1,2	
G'''-280(3.5-4.0)	10/25/99	1,2,3	
G'''-300(2.0-2.5)	10/25/99	1,2,3	
G'''-300(5.5-6.0)	10/25/99	1,Cadmium, Chromium	
G'''-365(3.0-3.5)	10/25/99	1,2,3	
G'''-365(6.5-7.0)	10/25/99	Cadmium	
G'''-400(3.5-4.0)	10/25/99	1,2,3	
G'''-400(6.5-7.0)	10/25/99	Chromium	
G'''-35(3.5-4.0)	10/25/99	1,2,3	
G'''-10(3.5-4.0)	10/22/99	1,2,3	
H-10(6.5-7.0)	10/18/99	1,2,3	
H-10(10.0-10.5)	10/18/99	Chromium	
H-35(4.0-4.5)	10/18/99	1,2,3	
H-45(7.0-7.5)	10/18/99	1,2,3	
H-60(7.0-7.5)	10/18/99	1,2,3	
H-75(7.0-7.5)	10/18/99	1,2,3	
H-90(7.0-7.5)	10/18/99	1,2,3	
H-90(10.5-11.0)	10/18/99	Arsenic, Chromium, Thallium	
H-140(7.5-8.0)	10/19/99	1,2,3	
H-140(7.5-8.0)BD	10/19/99	1,2	
H-190(13.0-13.5)	10/19/99	1,2,3	
H-190(13.0-13.5)BD	10/19/99	3	
H-240(14.5-15.0)	10/19/99	1,2,3	
H-290(15.0-15.5)	10/19/99	1,2,3	
H-340(14.0-14.5)	10/19/99	1,2,3	
H-390(7.0-7.5)	10/19/99	1,2,3	
H-455(9.0-9.5)	10/19/99	1,2,3	
H-490(7.5-8.0)	10/19/99	1,2,3	
H-490(7.5-8.0)BD	10/19/99	1,2	
H-525(7.5-8.0)	10/19/99	1,2,3	

1: TCL VOCs (ERM-FAST Lab)

2: TCL SVOCs (ERM-FAST Lab)

3: TAL Metals (Severn Trent Labs (STL))

Table 4-1
Supplemental Sewer Investigation Sample Summary
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID/Depth Interval	Date Collected	Analysis	Comments
H'-10(9.0-9.5)	10/19/99	1,2,3	
H'-10(9.0-9.5)BD	10/19/99	3	
H'-62(7.5-8.0)	10/19/99	1,2,3	

- 1: TCL VOCs (ERM-FAST Lab)
- 2: TCL SVOCs (ERM-FAST Lab)
- 3: TAL Metals (Severn Trent Labs (STL))

Section 5

The following sections present a summary of the post-excavation and additional excavation findings analytical results. Only samples that contained constituents at concentrations exceeding the more stringent of their respective RDCSCC or IGWSCC criteria, that have not been excavated and removed from the site for recycling, are addressed. Areas in which no data is discussed, or presented, were either successfully remediated by excavation, or did not contain constituents at concentrations exceeding the more stringent criteria in the initial post-excavation samples. Sewer post-excavation sample exceedances are shown on Plates 3 and 4 and in Table 5-1. Additional excavation finding post-excavation sample exceedances are shown on Plate 5 and in Table 5-2. A comprehensive summary of analytical results for all of the samples collected during the chemical sewer decommissioning is presented in Appendix K.

It should be noted that for the following SVOCs and metals an exceedance of the RDCSCC is also an exceedance of the Non-Residential Direct Contact Soil Clean-up Criteria (NRDCSCC), since the two cleanup criteria values are equal for these compounds: benzo(a)pyrene, dibenzo(a,h)anthracene, diethyl phthalate, dimethylphthalate, n-nitrosodi-n-propylamine, arsenic, beryllium, copper, thallium and zinc. In the discussion presented below, exceedances of these compounds are referenced only as exceedances of the RDCSCC. Constituents which exceed the NRDCSCC, that have a standard different than the RDCSCC standard, are noted.

5.1 OLD CHEMICAL SEWERS

5.1.1 Sidewall Sample Data

5.1.1.1 Volatile Organic Compounds

Nine sample locations along the old chemical sewer contained VOCs at concentrations that exceeded either the IGWSCC or the RDCSCC. Sample E''''-150-SW contained a 1,2-DCA concentration that exceeded the NRDCSCC. The samples found to be in exceedance of the appropriate criteria can be grouped into two areas, one located along the C line and the other along the E'''' and F' lines, just north of Buildings 68 and 168. One location along the A line also exceeds the IGWSCC criteria.

Four samples along the C line contained VOCs at concentrations that exceeded the more stringent of the RDCSCC and the IGWSCC. Three of the four samples along the C line contained tetrachloroethene (PCE) at concentrations exceeding the IGWSCC. The fourth contained trichloroethene (TCE) at a concentration that exceeded the IGWSCC. The maximum concentration was 3,800 ug/kg (PCE), followed by concentrations of 3,100 ug/kg (TCE), 1,200 ug/kg (PCE) and 1,100ug/kg (PCE).

Three samples along the E''' and F lines contained 1,2-dichloroethane (1,2-DCA) at a concentration that exceeded the IGWSCC. Of these three samples, two exceeded the RDCSCC and one sample exceeded the NRDCSCC. The highest concentration of 1,2-DCA was detected in sample E''''-150-SW (27,000 ug/kg). The concentration of 1,2-DCA in the other two samples were only 6,000 and 1,700 ug/kg.

One sample along the A line (CBP-SW-2-S) had concentrations of 2,200 and 2,800 ug/kg of chlorobenzene and PCE respectively, both exceeding the IGWSCC criteria.

5.1.1.2

Semi-Volatile Organic Compounds

A total of eighteen post-excavation sidewall samples were found to exceed the RDCSCC for SVOCs and three of those were found to exceed the NRDCSCC. Those exceeding the NRDCSCC, were benzo(a)anthracene, benzo(b)fluoranthene and benzo(k)fluoranthene in samples C-390-SW-S2, F'-30-SW-S and R'-60-SW-N.

Of the samples that exceeded the RDCSCC, benzo(a)pyrene occurred the most frequently, followed by benzo(b)fluoranthene, benzo(k)fluoranthene and benzo(a)anthracene. Nine of the exceedances fell along the C line, and the remaining ones were scattered along the A, B, E and F lines.

Benzo(a)pyrene exceeded its standard a total of 14 times. It exceeded in three locations along the E line, two locations along the F line, one location along the A line, and in four locations along the C line. The remaining benzo(a)pyrene exceedance results were interspersed throughout the site. Most of the benzo(a)pyrene concentrations were well below four times the standard with a few at approximately ten times the standard. The highest concentration of benzo(a)pyrene was detected in sample F'-60-SW-N. The concentration detected in this sample was 9,400 ug/kg, 14.2 times higher than the RDCSCC.

Benzo(b)fluoranthene and benzo(k)fluoranthene exceeded the RDCSCC in a total of 14 and 12 different locations respectively. Benzo(b)fluoranthene

exceedances were observed along the A, C, E and F lines and benzo(k)fluoranthene exceedances were slightly more scattered with occurrences along the A, C, E and F lines. Benzo(b)fluoranthene exceeded its standard by a maximum of 10.6 times, with a concentration of 9,500 ug/kg at location C-390-SW-S2. The highest benzo(k)fluoranthene concentration was observed at location F'-60-SW-N, with a concentration of 9,800 ug/kg, exceeding the standard by 10.8 times. These two relatively large exceedances were not the norm, however, and the majority of exceedances were less than ten times the standard for the remaining SVOCs.

Eleven benzo(a)anthracene exceedances were observed along the A, C, E and F lines. The largest benzo(a)anthracene exceedance was located at F'-60-SW-N. The concentration of benzo(a)anthracene in this sample was 8,400 ug/kg, 9.3 times higher than the RDCSCC.

Samples containing indeno(1,2,3-cd)pyrene at concentrations exceeding the RDCSCC were observed in 5 different locations. Chrysene, dibenzo(a,h)anthracene, 2,4,5-trichlorophenol and 2,4-dinitrotoluene were each detected with one occurrence at a concentration exceeding the RDCSCC. Of these compounds, none of the concentrations were greater than 3 times their respective RDCSCC.

5.1.1.3

Metals

Thirty-five post-excavation sidewall samples contained concentrations of metals that exceeded the RDCSCC. Ten of the samples contained metal concentrations that were in exceedance of the NRDCSCC and included cadmium and lead in at least one of the following samples: A-190-SW-N, C-210-SW-E, C-390-SW-N2, C-420-SW-N, C'''-50-B, CC-60-SW-S, E'''-100-SW, E'''-150-SW, G'-50-SW and CBP-SW-2-S.

The majority of the RDCSCC exceedances were located along the A, C and the E lines with a few others located along the B and G' lines. Thallium was the most frequently exceeded metal, with a total of 16 occurrences. Cadmium concentrations exceeded the standard by the largest amount, with two samples resulting in concentrations of 4,700 mg/kg, 120.5 times higher than the RDCSCC. These samples also exceeded the NRDCSCC by a factor of 47 times. This margin was the greatest exceedance observed. The other metal concentrations were at least below 18 times their applicable standard.

Lead exceeded the RDCSCC ten times, with six of the exceedances falling along the C line. The additional four exceedances were not observed to be grouped and were randomly spaced around the site. Arsenic was another

commonly observed exceedance, with seven, mostly scattered, exceedances locations. A small cluster of samples containing arsenic at concentrations exceeding the RDCSCC was observed just north of Building 68 and 168. All of the detected arsenic concentrations were below 1.5 times the RDCSCC.

Other metals found at concentrations exceeding the RDCSCC along the old chemical sewer included antimony (2 occurrences), barium (6 occurrences), and mercury (2 occurrences). Of these metals, all had detected concentrations below seven times their respective RDCSCC.

5.1.2 Bottom Sample Data

5.1.2.1 Volatile Organic Compounds

A total of 14 post-excavation bottom samples contained VOCs that exceeded the more stringent of the IGWSCC or the RDCSCC. All except two samples contained concentrations that were below the NRDCSCC. Those exceeding the NRDCSCC were 1,2-DCA in sample E''''-150-B and PCE in sample C-Pit-B.

There were two main areas where the IGWSCC and RDCSCC exceedances occurred. Six of the exceedances fell along the C line or its sub lines. Five exceedances were observed along the E'''' line. The remaining outlying exceedance was found on the A''' line.

Four PCE exceedances were observed along the C line, with the largest concentration occurring in the C-Pit sample. At this location, the PCE concentration was 11,000 ug/kg, exceeding both the NRDCSCC and IGWSCC criteria. The remaining three sample exceedance locations had concentrations greater than only the IGWSCC, and equal to, or below two times this standard. The one PCE exceedance located along the A''' line, exceeded both the IGWSCC and RDCSCC.

In two locations along the C sub line, CD-40-B DUP and CE-O-B, TCE was detected at a concentration exceeding the IGWSCC. The TCE concentrations were 2,000 and 1,300 ug/kg, exceeding the criteria by 2 and 1.3 times.

1,2-Dichloroethane (1,2-DCA) was the only VOC detected at concentrations exceeding its standard in the cluster of VOC exceedances along the E'''' line. The 1,2-DCA concentrations in all four of these samples exceeded the IGWSCC, three exceeded the RDCSCC, and one exceeded the NRDCSCC. The largest exceedance was observed at location E''''-150-B where the concentration of 1,2-DCA was 32,000 ug/kg, 32

times greater than the IGWSCC. The remaining 1,2-DCA exceedances were 22,000, 7,800, 6,000 and 2,000 ug/kg.

5.1.2.2

Semi-Volatile Organic Compounds

A total of 23 post-excavation bottom samples contained SVOCs at concentrations exceeding the more stringent of the IGWSCC and the RDCSCC, and seven of the 23 SVOC concentrations exceeded the NRDCSCC. The compounds exceeding the NRDCSCC included benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene in at least one of the following samples: B'-100-B, C-175-02, C-250-B, CC-50-B, CE-0-B, G''''-150-B, and C-Pit-B DUP.

Groups of SVOC exceedances were observed along the C line, B line, E lines, and along the C sub-lines (CC, CD, and CE). The remaining three exceedances were scattered throughout the site and showed no apparent pattern. Benzo(a)pyrene, benzo(b)fluoranthene, benzo(a)anthracene, benzo(f)fluoranthene and indeno(1,2,3-cd)pyrene had the greatest number of exceedances, as well as the greatest magnitude of exceedances.

Benzo(a)pyrene exceedances occurred most frequently, with a total of 18 sample concentrations greater than the RDCSCC. This compound also exceeded its standard by the greatest amount with a concentration of 28,000 ug/kg, 42 times the RDCSCC, making it the largest exceedance of all the post-excavation bottom samples. This occurred in sample CE-O-B. This relatively large exceedance was not the norm, and the majority of SVOC sample exceedances were less than 10 times their respective RDCSCC.

Benzo(b)fluoranthene exceeded the RDCSCC in 16 of the 23 post-excavation bottom samples, with a maximum concentration of 29,000 ug/kg, exceeding the RDCSCC 32 times its RDCSCC in sample CE-O-B. Benzo(b)fluoranthene exceeded in two locations along sewer line B, in all of the SVOC exceedance locations along sewer line C and the C sub-lines, and in all of the SVOC exceedance locations along sewer line E'. The remaining benzo(b)fluoranthene exceedances were scattered throughout the site.

Benzo(a)anthracene exceeded in 14 different locations, with its greatest exceedance occurring in CE-O-B at 33 times the RDCSCC and a concentration of 30,000 ug/kg. It was found to exceed in most of the same locations as benzo(a)pyrene and benzo(b)fluoranthene with the exception of the locations along sewer B line.

Benzo(k)fluoranthene concentrations exceeded the standard in 12 sample locations along sewer line E', B, and the C sub-lines, but were not found to exceed along the C line. The highest benzo(k)fluoranthene concentration was 18,000 ug/kg, exceeding the RDCSCC by 20 times at location CE-O-B.

Indeno(1,2,3-cd)pyrene's greatest exceedance was detected in CE-O-B, with a concentration of 13,000 ug/kg, 14 times the RDCSCC.

Indeno(1,2,3-cd)pyrene showed up in generally the same locations as the previous four most frequent compounds, with one exceedance observed along sewer line E''''.

The remaining compounds found to exceed their standards were chrysene (4 occurrences), dibenzo(a,h)anthracene (3 occurrences), 2,4,5-trichlorophenol (1 occurrence), naphthalene (1 occurrence), diethylphthalate (1 occurrence) and 3,3'-dichlorobenzidine (1 occurrence).

Of all the samples in which SVOCs were detected, only three exceeded the IGWSCC. These locations were E''''-150-B, C-Pit DUP and CBP-B-01.

The compounds that exceeded the IGWSCC criteria were 2,4,5-trichlorophenol, diethylphthalate and naphthalene.

5.1.2.3

Metals

Forty different post-excavation samples contained concentrations of metals that exceeded their respective RDCSCC, and four exceedances of the NRDCSCC were observed. Cadmium, lead and zinc had concentrations exceeding the NRDCSCC in at least one of the following samples: A'''-50-B, C-500-B, C-550-B and C-Pit-B DUP.

Exceedances of the RDCSCC were detected along the A, B, C, E and G lines. Thallium exceeded the most frequently with a total of 13 occurrences, followed by arsenic and chromium with a total of nine occurrences each. Of all the metal exceedances, cadmium exceeded the RDCSCC by the greatest margin with a concentration of 10,000 mg/kg (256 times higher than the RDCSCC). This occurred at location C-500-B; however, this high exceedance was not the norm and all other metals excluding cadmium were at least below 17 times their respective RDCSCC. Three of the four cadmium exceedances occurred along the western portion of the C line.

Arsenic, which had a maximum concentration of 160 mg/kg at G''''-50-B, was normally under two times the RDCSCC of 20 mg/kg. Arsenic exceedances occurred most frequently at the southern portion of the property along the F and the G lines. Thallium appeared to be fairly scattered around the site. Lead was detected most frequently (3

occurrences) along the C line. Other metals detected at concentrations exceeding their respective RDCSCC throughout the site were antimony (2 occurrences), barium (3 occurrences), copper (2 occurrences), mercury (2 occurrences), zinc and nickel (1 occurrence each).

5.2 NEW CHEMICAL SEWERS

As previously stated in Section 3.2.3, no post-excavation samples were collected during the removal of the new chemical sewers because there were no documented or visible indications of any past or present releases. The new chemical sewer was either secondarily contained with no signs of a release, or video logged to document its integrity (Table 3-1). These sewers are simply designated as "New Chemical Sewers" on the figures included in this report.

5.3 STORMWATER SEWER

5.3.1 Sidewall Sample Data

5.3.1.1 Volatile Organic Compounds

In six of the sidewall samples collected from the stormwater sewers, VOCs were detected at concentrations exceeding the more stringent of the RDCSCC and the IGWSCC. None of the samples had results with VOC concentrations exceeding the NRDCSCC. Four of the exceeding samples were located along the SSH line, and exceeded the IGWSCC for dichloromethane. The maximum dichloromethane exceedance was 2.1 times the IGWSCC. A sample located along the SSE line exceeded both the IGWSCC and RDCSCC for carbon tetrachloride and PCE. The sixth exceedance, located along the SSF line, also exceeded both the IGWSCC and RDCSCC for PCE. Each of the sample exceedances were below five times the most stringent standard.

5.3.1.2 Semi-Volatile Organic Compounds

In two different stormwater sewer post-excavation sample locations, SVOCs were detected at concentrations exceeding the RDCSCC, but none were detected at concentrations exceeding the NRDCSCC. Samples containing exceedances were identified in lines SSE and SSF. Benzo(k)fluoranthene exceeded in both of the samples and the largest concentration was 2,000 ug/kg, which was 2.2 times greater than the RDCSCC.

Twenty-one post-excavation samples, taken along the stormwater sewers, contained metals at concentrations exceeding the RDCSCC, and seven of these samples had metal concentrations exceeding the NRDCSCC. Samples SSC-30-SW-W, SSE-30-SW-W, SSE-60-SW-W, SSF-30-SW-W, SSJ-90-SW-S, SSM-120-SW-S, SSM-180-SW-S had metal concentrations exceeding the NRDCSCC in at least one of chromium or lead.

The RDCSCC exceedances appeared to be grouped in three main areas. One group was located in the northern portion of the property along lines SSG, SSI and SSJ. The second region of metal exceedances was observed slightly northeast of Building 89 along lines SSM and SSN, and the third group was observed east and south of Building 200 along SSA, SSB, SSC, SSE and SSF.

Lead exceeded in a total of 12 locations and also had the largest exceedance magnitude, with a concentration of 92,000 mg/kg in sample SSC-30-SW-W, exceeding the RDCSCC by 230 times and the NRDCSCC by 153 times. It was found to exceed in two of the areas discussed above located east of Building 89 and east and south of Building 200. The exceedance, which was 230 times the standard, was not the norm. The other lead exceedances were at least below 28 times their respective RDCSCC.

Chromium and arsenic both exceeded their RDCSCC a total of six and seven times respectively. Arsenic appeared most frequently in the northern portion of the site and only exceeded the RDCSCC by a maximum of 1.5 times. Chromium was observed in three of the five metal exceedance locations east and south of Building 200. The remaining three chromium exceedances did not form a distinct cluster. The two largest chromium concentrations were 9,500 mg/kg and 6,800 mg/kg, equating to exceedances of 39.6 and 28.3 times the RDCSCC. The remaining chromium exceedances were less than 10 times greater than the RDCSCC.

Seven other metals exceeded their respective RDCSCC, including antimony (three occurrences), barium (one occurrence), thallium (three occurrences), copper (three occurrences), mercury (three occurrences), selenium (one occurrence) and zinc (three occurrences). Of these compounds, thallium exceeded its standard by the greatest amount (15 times the RDCSCC). The margin of exceedance was considerably lower than this value for the remaining metals.

5.3.2 *Bottom Sample Data*

5.3.2.1 *Volatile Organic Compounds*

A total of four samples contained VOCs at concentrations exceeding the IGWSCC along the storm sewers. No exceedances of the RDCSCC or NRDCSCC were observed. In three of the samples located along line SSH, only dichloromethane was detected at exceeding concentrations. The maximum dichloromethane concentration was 2,000 ug/kg, or 2 times the IGWSCC. The fourth sample contained 1,2-DCA and was located along line SSA. The concentration of 1,2-DCA in this sample was only 1,300 ug/kg or 1.3 times the IGWSCC.

5.3.2.2 *Semi-Volatile Organic Compounds*

Only one bottom sample location along the old storm sewer was found to have remaining SVOC exceedances. Sample SSA-200-B contained benzo(a)pyrene, benzo(b)fluoranthene and benzo(k)fluoranthene at concentrations exceeding their respective NRDCSCC. These compounds had concentrations of: 3,100; 6,800 and 4,500 ug/kg respectively.

5.3.2.3 *Metals*

A total of nine post-excavation samples collected from along the stormwater sewers contained metals at concentrations exceeding the RDCSCC, and three of these metal concentrations exceeded the NRDCSCC. Chromium and lead exceeded the NRDCSCC in at least one of the following samples: SSA-100-B, SSH-0-B, SSM-200-B and C-Pit-B DUP.

Lead and arsenic exceedances occurred most frequently with a total of four exceedances of the RDCSCC each. Three of the lead exceedances occurred along line SSM with the maximum concentration equaling 1,300 mg/kg, exceeding the standard by only 3.25 times. The largest arsenic concentration was 49 mg/kg, exceeding the standard by 2.5 times, and was relatively scattered around the site. Chromium and antimony both had sample concentrations exceeding the criteria in two locations and mercury exceeded in one location. In one location chromium had a concentration of 9,300 mg/kg, a value 38.8 times the RDCSCC. This value was greater than the other metal exceedances, which were all below 3.25 times their RDCSCC.

5.4

ADDITIONAL EXCAVATION FINDINGS

A feature map, showing all of the additional findings identified during sewer excavation activities is presented in Figure 3-3. All of the samples taken from these additional finding locations are shown on Figure 3-4, including "FYI" samples. Samples that were found to have exceedances of the more stringent of the IGWSCC or RDCSCC are presented on Plate 5. Consistent with the description of the sewer line post-excitation sample analytical results, only existing exceedances of the more stringent of the RDCSCC and the IGWSCC are discussed below. Sample locations shown on Figure 3-4 that are not shown on Plate 5, did not contain constituents at concentrations exceeding the more stringent criteria in the initial post-excitation samples, or have been successfully removed by excavation.

5.4.1 *Cesspools*

5.4.1.1 *Volatile Organic Compounds*

In the area of the former cesspools, seven samples were found to contain concentrations of VOCs that exceeded the more stringent of the IGWSCC and RDCSCC. In all seven samples, TCE was present at concentrations exceeding the IGWSCC. Sample A-60-Stone-B had the highest TCE concentration, with a result of 5,700,000 ug/kg, exceeding the NRDCSCC by a factor of 105. Sample A-60-Stone-B also had the highest number of VOCs in exceedance (nine in total), with three of those compounds exceeding the RDCSCC and four of the compounds exceeding the NRDCSCC.

5.4.1.2 *Semi-volatile Organic Compounds*

Only the A-60-Stone-B sample contained concentrations of SVOCs that exceeded the more stringent of the IGWSCC and RDCSCC criteria. Diethylphthalate exceeded the IGWSCC with a concentration of 840,000 ug/kg and n-nitrosodiphenylamine exceeded the RDCSCC with a concentration of 430,000 ug/kg. None of the SVOC sample concentrations were in exceedance of the NRDCSCC.

5.4.1.3 *Metals*

Antimony, copper, thallium and zinc were detected at a concentrations that exceeded the RDCSCC in sample A-60-Stone-B. Lead was detected at a concentration that exceeded the NRDCSCC in this sample. No other location within the Cesspool area had samples with concentrations of metals in exceedance of the RDCSCC or NRDCSCC.

5.4.2 *Old Cooling Tower Foundation*

None of the post-excavation samples collected from the Old Cooling Tower foundation were found to contain constituents with concentrations in exceedance of the IGWSCC, RDCSCC or NRDCSCC. Based on these analytical results, the area was either successfully remediated by excavation or the soil adjacent to and underlying the foundation was not impacted by constituents at concentrations exceeding the more stringent criteria.

5.4.3 *Old Foundry*

None of the post-excavation samples collected from the Old Foundry were found to contain constituents with concentrations in exceedance of the IGWSCC, RDCSCC or NRDCSCC. Based on these analytical results, the area was either successfully remediated by excavation or the soil adjacent to and underlying the area was not impacted by constituents at concentrations exceeding the more stringent criteria.

5.4.4 *Former Spent Acid Pit Area/Former Stormwater Retention Pond*

5.4.4.1 *Volatile Organic Compounds*

Only one sample collected from the Former Spent Acid Pit Area contained a VOC at a concentration in exceedance of the IGWSCC. In sample Pond-SW-W-4-02, TCE was detected at a concentration of 2,800 ug/kg, exceeding the IGWSCC by a factor of 2.8 times. There were no samples with concentrations exceeding the RDCSCC or the NRDCSCC.

5.4.4.2 *Semi-volatile Organic Compounds*

Only one sample taken from the area of the former spent acid pit contained SVOCs at concentrations in exceedance of only the RDCSCC. Benzo(a)pyrene and benzo(k)fluoranthene were detected at concentrations of 720 ug/kg and 2,000 ug/kg, exceeding their respective criteria by a factor of 1.1 and 2.2 times.

5.4.4.3 *Metals*

Four samples collected from the former spent acid pit had metals with concentrations in exceedance of the RDCSCC and one sample had a reported metal concentration in exceedance of the NRDCSCC. Lead exceeded the NRDCSCC in sample Pond-SW-N. Pond-SW-N also had the most number of metal occurrences, with a total of six different metals, four in exceedance of the RDCSCC and one in exceedance of the

NRDCSCC. Lead was detected at a concentration of 1,500 mg/kg, exceeding its RDCSCC by a factor of 3.8 times. All other metal exceedances were below a factor of 3.6 times their respective RDCSCC.

5.4.5 *Septic Tank Near Building 78*

One sample taken from the area of the septic tank near Building 78 contained arsenic at a concentration that exceeded the RDCSCC. The arsenic concentration was only 26 mg/kg, compared to the criteria of 20 mg/kg.

5.4.6 *Tank "J"*

None of the post-excavation samples collected from Tank "J" were found to contain constituents with concentrations in exceedance of the IGWSCC, RDCSCC or NRDCSCC. Based on these analytical results, the area was either successfully remediated by excavation or the soil adjacent to and underlying the area was not impacted by constituents at concentrations exceeding the more stringent criteria.

5.4.7 *The Former Building 30's Pit*

5.4.7.1 *Volatile Organic Compounds*

None of the post-excavation samples collected from the Former Building 30's Pit were found to contain VOCs with concentrations in exceedance of the IGWSCC, RDCSCC or NRDCSCC. Based on these analytical results, the area was either successfully remediated by excavation or the soil adjacent to and underlying the area was not impacted by constituents at concentrations exceeding the more stringent criteria.

5.4.7.2 *Semi-volatile Organic Compounds*

One sample take from the Former Building 30's Pit contained SVOC concentrations in exceedance of the RDCSCC. Benzo(a)pyrene had the largest margin of exceedance with a concentration of 3,000 ug/kg, a factor of 4.5 times larger than the RDCSCC. The remaining exceedances were below 3.4 times their respective RDCSCC.

5.4.7.3 *Metals*

Lead was the only metal found at a concentration that exceeded its NRDCSCC in samples collected from the Former Building 30's Pit. It had a concentration of 1,700 mg/kg, exceeding the RDCSCC by a factor of 4.3 times.

5.4.8

Building 9 Tanks

During the sewer decommissioning activities the Building 9 USTs were targeted for removal. These tanks were closed in place by Givaudan Roure, but were going to be removed since they would be slightly above grade once Building 9 was demolished. Due to the demolition schedule, these tanks could not be removed during sewer decommissioning activities. A separate report documenting the closure of these tanks, by excavation, will be submitted under separate cover.

There were no exceedances of the reuse criteria in soil samples taken from the soil stockpiled that was removed from beneath the floor of Building 9 and the top of the four USTs. This stockpiled soil was used for fill in this area after the building was demolished.

There were no exceedance of the IGWSCC, RDCSCC or NRDCSCC in the post-excavation soil samples collected after the tanks were removed. Pinene was detected in two samples, B9T (1-1) at 54,000 D ug/kg and in B9T (3-1) at 47,000 D ug/kg. Pinene however is a natural material and not regulated as a waste.

A comprehensive summary of analytical results for all of the post-excavation soil samples collected after the removal of the Building 9 tanks is presented in Appendix L.

5.4.9

"FYI" Samples

5.4.9.1

Volatile Organic Compounds

None of the "FYI" samples collected during the chemical sewer investigation were found to have VOCs in exceedance of either the IGWSCC, RDCSCC or NRDCSCC criteria.

5.4.9.2

Semi-volatile Organic Compounds

Four different "FYI" samples (Blue-01, G'-42-Pipe, SSA-Black and SSP-Gray-01) collected during excavation activities contained concentrations of SVOCs in exceedance of the RDCSCC and NRDCSCC. Sample Blue-01, located along the A''' line, had the most SVOC compounds in exceedance of the criteria as well as the highest concentrations of SVOCs. Results from this sample indicated that benzo(a)anthracene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene all exceeded the NRDCSCC. Benzo(a)pyrene, dibenzo(a,h)anthracene, chrysene and fluoranthene were also detected in this sample at concentrations that exceeded the RDCSCC. The remaining 3 "FYI" samples contained only

one SVOC exceedance each. Of these three samples, G'-42-Pipe had the largest relative exceedance, with a concentration of benzo(k)fluoranthene equal to 2,500 ug/kg, 2.8 times the RDCSCC.

5.4.9.3

Metals

The same four "FYI" samples that had results with concentrations of SVOCs in exceedance of their respective criteria, also contained concentrations of metals in exceedance of the RDCSCC and NRDCSCC. Seven different metals (antimony, chromium, copper, mercury, nickel, thallium and zinc) exceeded their respective RDCSCC in at least one of these four locations. Lead contained concentrations that exceeded the NRDCSCC in all four of the "FYI" samples, and also exceeded its RDCSCC by the greatest magnitude with a concentration of 8,700 mg/kg in sample Blue-01.

5.5

SUPPLEMENTAL SEWER INVESTIGATION

Prior to implementing the supplemental chemical sewer investigation, the majority of the old chemical sewer was excavated and subsequently backfilled. However, as discussed in Section 4.0, several lengths of sewer were inaccessible during excavation activities due to incomplete demolition of buildings and demolition materials staging. As a result, these areas could not be addressed until after the sewer excavation activities were completed. To evaluate the existing sewer lines that were not excavated, a total of 65 soil borings were advanced along remaining sewer lines to assess any potential impacts related to former operations.

5.5.1

Soil Sampling Analytical Results

The locations of the soil borings advanced during the supplemental sewer investigation are shown on Plate 2. A summary of the soil samples collected from these borings is presented in Table 4-1. Consistent with the post-excavation soil analytical data, soil analytical results from the supplemental sewer investigation were compared to the more stringent of the RDCSCC and the IGWSCC for screening purposes. Compounds detected at concentrations exceeding the more stringent of the criteria are presented in Table 5-3 and Plate 6. The following discussion provides a summary of the supplemental sewer investigation analytical results.

5.5.1.1

Volatile Organic Compounds

Concentrations of VOCs exceeding the more stringent of the RDCSCC and the IGWSCC were detected in only five of the 65 borings completed

during the supplemental sewer investigation. Benzene and chlorobenzene were detected at concentrations marginally exceeding the IGWSCC in one sample location (C-710(2.5-3.0)). The concentration of benzene detected in this sample also exceeded the RDCSCC.

The other targeted VOCs detected at concentrations exceeding the IGWSCC were TCE and PCE. Except for sample G''''-300(5.5-6) in which the concentration of PCE exceeded the NRDCSCC, neither of these compounds was detected at a concentration exceeding the RDCSCC (or NRDCSCC). Each of the VOCs discussed above was present at concentrations of equivalent order of magnitude to their respective IGWSCC.

5.5.1.2

Semi-Volatile Organic Compounds

Only four of the 65 supplemental investigation borings contained concentrations of SVOCs at concentrations in excess of the RDCSCC. In five samples collected from these borings, only PAHs were detected. No other SVOCs were detected in these samples, and the occurrence of SVOCs did not correlate with the samples in which VOCs were detected. In three of the borings (C'-110, C'-135, and C''''-75), the detected concentrations exceeded the NRDCSCC. In two of these borings, benzo(a)pyrene was the only PAH which exceeded the NRDCSCC (the NRDCSCC for benzo(a) pyrene is equal to the RDCSCC). None of the PAHs detected were present at concentrations exceeding the IGWSCC.

5.5.1.3

Metals

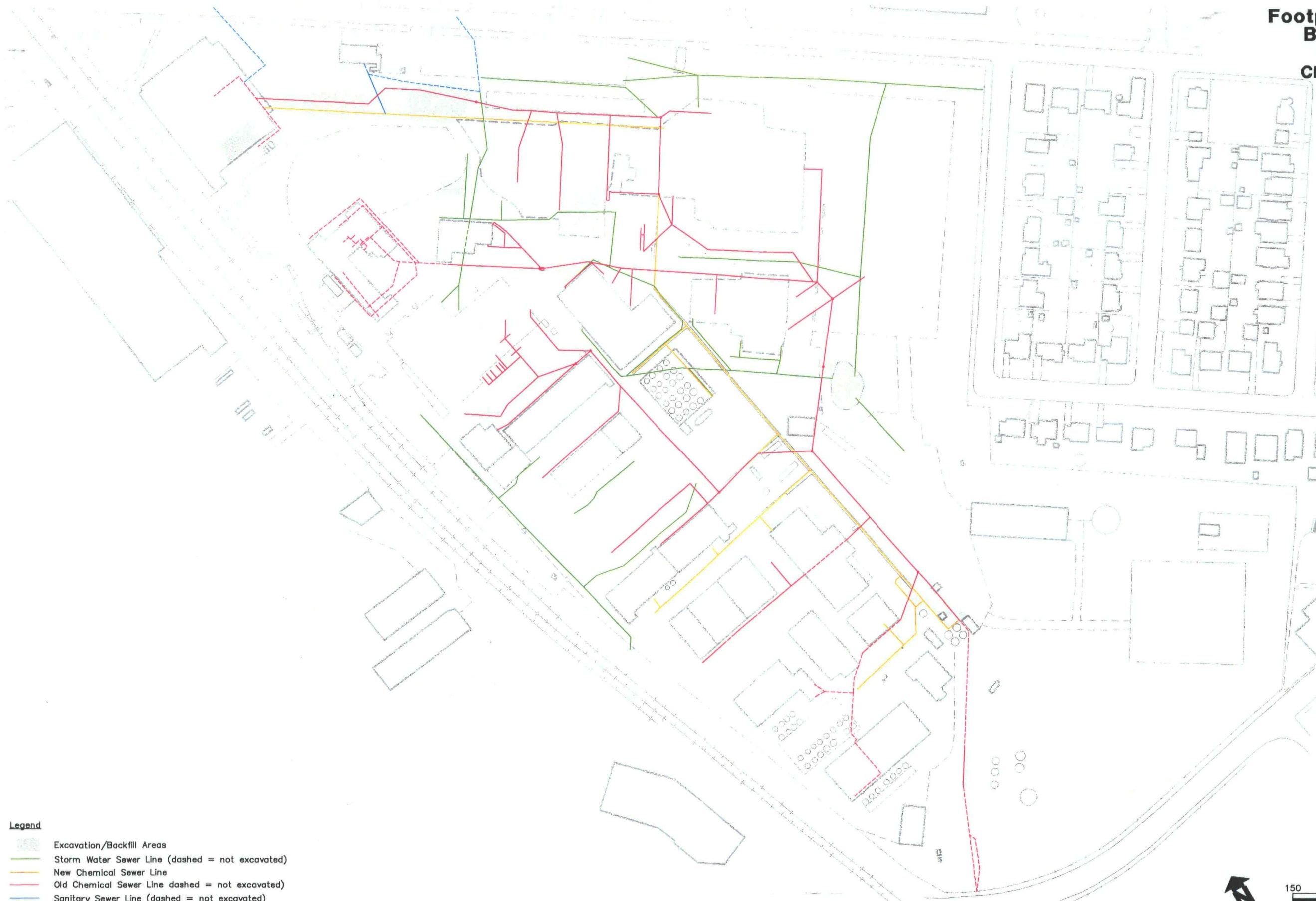
Five metals (arsenic, chromium, lead, thallium, and vanadium) were detected at concentrations exceeding the RDCSCC along the C, C''', G', G'', G''''', and H sewer lines. Out of the 65 boring locations, eight locations (C-710, C'''-20, G'-78, G'-118, G'''-43, G''''-400, H-10, and H-90,) contained exceedances of one or more of these constituents.

Chromium was detected at concentrations exceeding the RDCSCC in four boring locations (H-10, H-90, C-710, and G''''-400), with the maximum concentration (787 mg/Kg) found in the H-90(7.0-7.5) sample. Of the five metals, thallium detected in sample G'-78(2.5-3.0) exceeded its respective RDCSCC (2 mg/Kg) by the greatest margin (two orders of magnitude). Except for thallium detected in boring H-90, which exceeded the RDCSCC by one order of magnitude, all other metals were on the same order of magnitude as their respective RDCSCC.

A summary of excavated soil management is provided in Table 5.4. As discussed in Section 3.9, soil not fit for site reuse was characterized for disposal, and transported to Clean Earth by EWMI for recycling. In total, approximately 15,600 tons of excavated soil was transported offsite. Additionally, 2,558.84 tons of asphalt were transported to Braen Stone Industries, Inc. for recycling. As discussed in Section 3.9, concrete generated during excavation activities was reused onsite following crushing and analysis.

At present, excavations created during the sewer decommissioning activities have been backfilled, compacted and brought to grade. The footprint of these excavated and backfilled areas are shown on Figure 5-1.

Figure 5-1
Footprint of Excavated
Backfilled Areas
Glvaudan Roure
Clifton, New Jersey



- Legend**
- Excavation/Backfill Areas
 - Storm Water Sewer Line (dashed = not excavated)
 - New Chemical Sewer Line
 - Old Chemical Sewer Line dashed = not excavated)
 - Sanitary Sewer Line (dashed = not excavated)

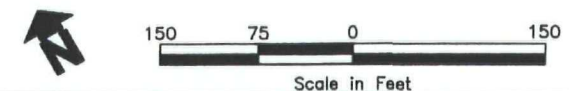


Table 1

Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
A-130-SW-N	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1200	ug/Kg
	Benzo(a)pyrene	660	660	100000	1100	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1300	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	990	ug/Kg
A-190-SW-N	Metals					
	Lead	400	600		1200	mg/Kg
A-200-B	Metals					
	Thallium	2	2		5.3	mg/Kg
A-280-SW-S	Metals					
	Antimony	14	340		22	mg/Kg
	Thallium	2	2		3.1	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1400	ug/Kg
	Benzo(a)pyrene	660	660	100000	1600	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2300	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1900	ug/Kg
A-300-B	Metals					
	Antimony	14	340		22	mg/Kg
A-320-SW-N	Metals					
	Thallium	2	2		3.6	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1

Sewer Post-Excavation Exceedances

Givaudan Roure Corporation

Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
A"-50B	<i>Metals</i>					
	Copper	600	600		700	mg/Kg
	Lead	400	600		2400	mg/Kg
	Mercury	14	270		15	mg/Kg
	Thallium	2	2		2.4	mg/Kg
	<i>VOCs</i>					
	Tetrachloroethene	4000	6000	1000	4900	ug/Kg
A-50-B	<i>Metals</i>					
	Thallium	2	2		3.2	mg/Kg
A"-60-SW-E	<i>SVOCs</i>					
	Benzo(a)pyrene	660	660	100000	1300	ug/Kg
A-90-SW-N2	<i>Metals</i>					
	Arsenic	20	20		22	mg/Kg
B-02B	<i>Metals</i>					
	Chromium	240	6100		260	mg/Kg
B-03B	<i>Metals</i>					
	Chromium	240	6100		260	mg/Kg
B-05B	<i>SVOCs</i>					
	Benzo(b)fluoranthene	900	4000	50000	930	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1

Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
B-06B	SVOCs					
	Benzo(a)pyrene	660	660	100000	2200 (J)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1900 (J)	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1700 (J)	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	2000 (J)	ug/Kg
B'-100B	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2300 (J)	ug/Kg
	Benzo(a)pyrene	660	660	100000	6400	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	12000	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	3400	ug/Kg
B'-200B	SVOCs					
	Benzo(a)pyrene	660	660	100000	2000	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	3900	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	990	ug/Kg
B-330-SW-E	Metals					
	Chromium	240	6100		530	mg/Kg
B-390-SW-E	Metals					
	Chromium	240	6100		400	mg/Kg
B-475-B	Metals					
	Chromium	240	6100		680	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table -1

Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
B-675-B	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1600 (J)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2200 (J)	ug/Kg
C-10-SW-E	Metals					
	Thallium	2	2		2.3	mg/Kg
C-150-SW-E	SVOCs					
	Benzo(b)fluoranthene	900	4000	50000	910	ug/Kg
C-15-SW-W	Metals					
	Thallium	2	2		2.3	mg/Kg
C-175-02	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2900	ug/Kg
	Benzo(a)pyrene	660	660	100000	3500	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	6600	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	2400 (J)	ug/Kg
C-180-SW-W	SVOCs					
	Benzo(k)fluoranthene	900	4000	500000	1700 (J)	ug/Kg
C-200-02	VOCs					
	Tetrachloroethene	4000	6000	1000	2500	ug/Kg
	SVOCs					
	3,3'-Dichlorobenzidine	2000	6000	100000	3400	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
C-210-SW-E	<i>Metals</i>					
	Lead	400	600		820	mg/Kg
	VOCs					
	Tetrachloroethene	4000	6000	1000	3800	ug/Kg
	SVOCs					
	Benzo(b)fluoranthene	900	4000	50000	1800 (J)	ug/Kg
C-225-02	<i>Metals</i>					
	Lead	400	600		500	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1400	ug/Kg
	Benzo(a)pyrene	660	660	100000	2200	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2800	ug/Kg
C-230-SW-W	VOCs					
	Tetrachloroethene	4000	6000	1000	1100	ug/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1100	ug/Kg
	Benzo(a)pyrene	660	660	100000	1200	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2100	ug/Kg
C-250-02	VOCs					
	Tetrachloroethene	4000	6000	1000	1300	ug/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2300 (J)	ug/Kg
	Benzo(a)pyrene	660	660	100000	2100 (J)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	4300	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
C-275-02	<i>Metals</i>					
	Chromium	240	6100		450	mg/Kg
	VOCs					
	Tetrachloroethene	4000	6000	1000	3600	ug/Kg
C-290-SW-W	VOCs					
	Tetrachloroethene	4000	6000	1000	1200	ug/Kg
C-30-SW-N	SVOCs					
	Benzo(a)anthracene	900	4000	500000	970	ug/Kg
	Benzo(a)pyrene	660	660	100000	990	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	970	ug/Kg
C-360-SW-N2	<i>Metals</i>					
	Lead	400	600		1600	mg/Kg
	VOCs					
	Trichloroethene	23000	54000	1000	3100 (D)	ug/Kg
	SVOCs					
	Benzo(b)fluoranthene	900	4000	50000	910 (J)	ug/Kg
C-390-SW-N2	<i>Metals</i>					
	Lead	400	600		1000	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	930	ug/Kg
	Benzo(a)pyrene	660	660	100000	1100	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1000	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	920	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1

Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
C-390-SW-S2	SVOCs					
	2,4-Dinitrotoluene	1000	4000	10000	1600	ug/Kg
	Benzo(a)anthracene	900	4000	500000	6100	ug/Kg
	Benzo(a)pyrene	660	660	100000	6900	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	9500	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	8600	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	1800	ug/Kg
C-400-B	Metals					
	Thallium	2	2		2.2	mg/Kg
C-40-B2	Metals					
	Arsenic	20	20		31	mg/Kg
C-420-SW-N	Metals					
	Cadmium	39	100		3200	mg/Kg
	Lead	400	600		3000	mg/Kg
	Thallium	2	2		35	mg/Kg
C-500-B	Metals					
	Cadmium	39	100		10000	mg/Kg
	Chromium	240	6100		280	mg/Kg
C-50-B	SVOCs					
	Benzo(a)pyrene	660	660	100000	800	ug/Kg
C-510-SW-N	Metals					
	Cadmium	39	100		4700	mg/Kg
	Lead	400	600		600	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
	Thallium	2	2		9.2	mg/Kg
C-550-B	Metals					
	Cadmium	39	100		3000	mg/Kg
C-70-SW-S2	Metals					
	Chromium	240	6100		1800	mg/Kg
C-B-02	Metals					
	Antimony	14	340		18	mg/Kg
CBP-B-01	SVOCs					
	Naphthalene	230000	4200000	100000	130000 (D)	ug/Kg
CBP-SW-2-S	Metals					
	Chromium	240	6100		323	mg/kg
	Lead	400	600		1270*	mg/kg
	Mercury	14	270		40.4	mg/kg
	VOCs					
	Chlorobenzene	37000	680000	1000	2200	ug/Kg
	Tetrachloroethene	4000	6000	1000	2800	ug/Kg
CC-30-SW-N2	SVOCs					
	Benzo(a)pyrene	660	660	100000	1100	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1500	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
CC-50-B	<i>Metals</i>					
	Copper	600	600		790	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	11000	ug/Kg
	Benzo(a)pyrene	660	660	100000	21000	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	28000	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	14000	ug/Kg
	Chrysene	9000	40000	500000	13000	ug/Kg
	Dibenzo(a,h)anthracene	660	660	100000	6100	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	13000	ug/Kg
CC-60-SW-S	<i>Metals</i>					
	Lead	400	600		670	mg/Kg
CC-90-B	<i>Metals</i>					
	Chromium	240	6100		610	mg/Kg
	Thallium	2	2		17.0	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1500	ug/Kg
	Benzo(a)pyrene	660	660	100000	1800	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2300	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1400	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	1000	ug/Kg
CD-0-B	<i>Metals</i>					
	Lead	400	600		480	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
CD-40-B DUP	VOCs					
	Trichloroethene	23000	54000	1000	1300	ug/Kg
	SVOCs					
	Benzo(a)pyrene	660	660	100000	1100 (J)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2300	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1200 (J)	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	980 (J)	ug/Kg
CE-0-B	VOCs					
	Trichloroethene	23000	54000	1000	2000	ug/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	30000 (D)	ug/Kg
	Benzo(a)pyrene	660	660	100000	28000 (D)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	29000 (D)	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	18000	ug/Kg
	Chrysene	9000	40000	500000	37000 (D)	ug/Kg
	Dibenzo(a,h)anthracene	660	660	100000	6000	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	13000	ug/Kg
CE-25-B	Metals					
	Arsenic	20	20		25	mg/Kg
DA-01B	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1300	ug/Kg
	Benzo(a)pyrene	660	660	100000	1500	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1500	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1400	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
E''''-00-B	VOCs					
	1,2-Dichloroethane	6000	24000	1000	7800	ug/Kg
E''''-00-B	Metals					
	Mercury	14	270		20	mg/Kg
	Nickel	250	2400		310	mg/Kg
E''-00-B	Metals					
	Barium	700	47000		870	mg/Kg
	SVOCs					
	Benzo(a)pyrene	660	660	100000	1000 (J)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1100	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1300	ug/Kg
E''''-100-B	Metals					
	Chromium	240	6100		3900	mg/Kg
	VOCs					
	1,2-Dichloroethane	6000	24000	1000	6000	ug/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2300	ug/Kg
	Benzo(a)pyrene	660	660	100000	2300	ug/Kg
E'''-100-B	Indeno(1,2,3-cd)pyrene	900	4000	500000	2000	ug/Kg
	Metals					
	Cadmium	39	100		5200	mg/Kg
E''''-100-SW	Metals					
	Thallium	2	2		2.9	mg/Kg
	VOCs					

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
	1,2-Dichloroethane	6000	24000	1000	6000	ug/Kg
E''''-100-SW	Metals					
	Barium	700	47000		870	mg/Kg
	Thallium	2	2		2.9	mg/Kg
E'''-100-SW	Metals					
	Cadmium	39	100		510	mg/Kg
	Thallium	2	2		4.7	mg/Kg
E'-100-SW	Metals					
	Barium	700	47000		2100	mg/Kg
E''''-150-B	Metals					
	Thallium	2	2		4.6	mg/Kg
	VOCs					
	1,2-Dichloroethane	6000	24000	1000	32000	ug/Kg
	SVOCs					
	2,4,5-Trichlorophenol	5600000	10000000	50000	290000 (D)	ug/Kg
E'-150-B	Metals					
	Thallium	2	2		3.2	mg/Kg
	SVOCs					
	Benzo(b)fluoranthene	900	4000	50000	960	ug/Kg
E'-150-B DUP	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1300	ug/Kg
	Benzo(a)pyrene	660	660	100000	1200	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1300	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table S-1

Sewer Post-Excavation Exceedances

Givaudan Rôure Corporation

Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
E''''-150-SW	Benzo(k)fluoranthene	900	4000	500000	1000	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	1100	ug/Kg
	Metals					
	Arsenic	20	20		26	mg/Kg
	VOCs					
	1,2-Dichloroethane	6000	24000	1000	27000	ug/Kg
E'''-150-SW	SVOCs					
	2,4,5-Trichlorophenol	5600000	10000000	50000	62000	ug/Kg
	Metals					
	Cadmium	39	100		4700	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2800	ug/Kg
	Benzo(a)pyrene	660	660	100000	2300	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	2700	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1700	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	2400	ug/Kg
E''''-200-B	Metals					
	Thallium	2	2		2.1	mg/Kg
	VOCs					
E''''-200-SW	1,2-Dichloroethane	6000	24000	1000	22000	ug/Kg
	Metals					
	Thallium	2	2		2.6	mg/Kg
E'-200-SW	Metals					
	Arsenic	20	20		24	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table D-1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
E-210-SW-E	<i>Metals</i>					
	Lead	400	600		550	mg/Kg
E-30-SW-N	<i>Metals</i>					
	Barium	700	47000		710	mg/Kg
E-400-B2	<i>Metals</i>					
	Arsenic	20	20		40	mg/Kg
E-50-B	<i>VOCs</i>					
	1,2-Dichloroethane	6000	24000	1000	2000	ug/Kg
E-50-B	<i>Metals</i>					
	Thallium	2	2		2.8	mg/Kg
E-50-B	<i>Metals</i>					
	Barium	700	47000		830	mg/Kg
	Thallium	2	2		3.8	mg/Kg
E-50-B	<i>Metals</i>					
	Barium	700	47000		1800	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2500	ug/Kg
	Benzo(a)pyrene	660	660	100000	2300	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	3500	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	2300	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	1500	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 3-1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
E'''-50-SW	<i>Metals</i>					
	Arsenic	20	20		23	mg/Kg
E'''-50-SW	<i>Metals</i>					
	Barium	700	47000		760	mg/Kg
	Thallium	2	2		3.6	mg/Kg
E'-50-SW	<i>Metals</i>					
	Barium	700	47000		1800	mg/Kg
	SVOCs					
	Benzo(a)anthracene	900	4000	500000	2700	ug/Kg
	Benzo(a)pyrene	660	660	100000	2400	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	3400	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1900	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	1400	ug/Kg
E''-90-B	<i>Metals</i>					
	Thallium	2	2		2.7	mg/Kg
E-90-SW-W	SVOCs					
	Benzo(a)anthracene	900	4000	500000	1200	ug/Kg
	Benzo(a)pyrene	660	660	100000	1200	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	1600	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	1200	ug/Kg
E''A-30-SW-E	<i>Metals</i>					
	Thallium	2	2		4.9	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J-1

Sewer Post-Excavation Exceedances

Givaudan Roure Corporation

Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
E"C-8-B	Metals					
	Thallium	2	2		3.9	mg/Kg
E"C-8-SW-S	Metals					
	Thallium	2	2		3	mg/Kg
F-100-B	Metals					
	Arsenic	20	20		38	mg/Kg
F'-120-SW-N	Metals					
	Arsenic	20	20		24	mg/Kg
	VOCs					
	1,2-Dichloroethane	6000	24000	1000	1700	ug/Kg
F'-30-SW-S	SVOCs					
	Benzo(a)anthracene	900	4000	500000	5900 (D)	ug/Kg
	Benzo(a)pyrene	660	660	100000	6300 (D)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	4800 (D)	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	8100 (D)	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	3400 (D)	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	4000	500000	2000	ug/Kg
F'-60-SW-N	SVOCs					
	Benzo(a)anthracene	900	4000	500000	8400 (D)	ug/Kg
	Benzo(a)pyrene	660	660	100000	9400 (D)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	6900 (D)	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	9800 (D)	ug/Kg
	Chrysene	9000	40000	500000	10000 (D)	ug/Kg
	Dibenzo(a,h)anthracene	660	660	100000	1800 (D)	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J-1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
	Indeno(1,2,3-cd)pyrene	900	4000	500000	2400	ug/Kg
F-60-SW-N DUP	<i>Metals</i>					
	Arsenic	20	20		22	mg/Kg
G'''-150-B	<i>SVOCs</i>					
	Benzo(a)anthracene	900	4000	500000	12000 (D)	ug/Kg
	Benzo(a)pyrene	660	660	100000	12000 (D)	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	20000 (D)	ug/Kg
	Chrysene	9000	40000	500000	15000 (D)	ug/Kg
G'''-150-SW-N	<i>SVOCs</i>					
	Benzo(a)pyrene	660	660	100000	750	ug/Kg
G'-25-B	<i>Metals</i>					
	Lead	400	600		450	mg/Kg
G'-25-SW	<i>Metals</i>					
	Antimony	14	340		62	mg/Kg
	Barium	700	47000		4600	mg/Kg
	Lead	400	600		4400	mg/Kg
	Mercury	14	270		31	mg/Kg
	Thallium	2	2		4.7	mg/Kg
G-300-B	<i>Metals</i>					
	Arsenic	20	20		21	mg/Kg
G-350-B	<i>Metals</i>					
	Arsenic	20	20		31	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J-1

Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
G-450B	<i>Metals</i>					
	Arsenic	20	20		23	mg/Kg
G-50-B	<i>Metals</i>					
	Arsenic	20	20		160	mg/Kg
G-65-B	<i>Metals</i>					
	Arsenic	20	20		30	mg/Kg
Gmanhole 01	<i>Metals</i>					
	Arsenic	20	20		25	mg/Kg
SSA-100-B	<i>Metals</i>					
	Lead	400	600		660	mg/Kg
SSA-200-B	<i>Metals</i>					
	Arsenic	20	20		21	mg/Kg
	VOCs					
	1,2-Dichloroethane	6000	24000	1000	1300	ug/Kg
	SVOCs					
	Benzo(a)pyrene	660	660	100000	3100	ug/Kg
	Benzo(b)fluoranthene	900	4000	50000	6800	ug/Kg
	Benzo(k)fluoranthene	900	4000	500000	4500	ug/Kg
SSA-210-SW-N	<i>Metals</i>					
	Lead	400	600		440	mg/Kg
SSB-60-SW-E	<i>Metals</i>					

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J-1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
	Lead	400	600		450	mg/Kg
SSC-30-SW-W	<i>Metals</i>					
	Chromium	240	6100		9500	mg/Kg
	Copper	600	600		1600	mg/Kg
	Lead	400	600		92000	mg/Kg
	Selenium	63	3100		340	mg/Kg
	Thallium	2	2		30	mg/Kg
SSD-240-SW-E	<i>Metals</i>					
	Arsenic	20	20		28	mg/Kg
SSE-30-SW-W	<i>Metals</i>					
	Chromium	240	6100		610	mg/Kg
	Lead	400	600		1100	mg/Kg
SSE-60-SW-W	<i>Metals</i>					
	Chromium	240	6100		3600	mg/Kg
	Copper	600	600		660	mg/Kg
	Lead	400	600		23000	mg/Kg
	Mercury	14	270		130	mg/Kg
	Thallium	2	2		22	mg/Kg
	<i>VOCs</i>					
	Carbon tetrachloride	2000	4000	1000	3800	ug/Kg
	Tetrachloroethene	4000	6000	1000	4300	ug/Kg
	<i>SVOCs</i>					
	Benzo(k)fluoranthene	900	4000	500000	2000	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table S-1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
SSF-30-SW-W	<i>Metals</i>					
	Copper	600	600		2300	mg/Kg
	Lead	400	600		1200	mg/Kg
	VOCs					
	Tetrachloroethene	4000	6000	1000	4600	ug/Kg
	SVOCs					
SSG-450-SW-N	Benzo(k)fluoranthene	900	4000	500000	1800 (J)	ug/Kg
	<i>Metals</i>					
SSH-0-B	Arsenic	20	20		22	mg/Kg
	<i>Metals</i>					
SSH-100-B	Chromium	240	6100		9300	mg/Kg
	VOCs					
SSH-120-SW-S	Dichloromethane	49000	210000	1000	1900	ug/Kg
	VOCs					
SSH-120-SW-S	Dichloromethane	49000	210000	1000	1700	ug/Kg
	VOCs					

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J-1
Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
SSH-150-B	VOCs					
	Dichloromethane	49000	210000	1000	2000	ug/Kg
SSH-150-SW-N	VOCs					
	Dichloromethane	49000	210000	1000	1500	ug/Kg
SSH-180-SW-S	VOCs					
	Dichloromethane	49000	210000	1000	1900	ug/Kg
SSH-200-B	Metals					
	Arsenic	20	20		36	mg/Kg
	VOCs					
SSH-210-SW-N	Dichloromethane	49000	210000	1000	1400	ug/Kg
	VOCs					
SSH-30-SW-N	Dichloromethane	49000	210000	1000	2100	ug/Kg
	VOCs					
SSH-30-SW-N	Metals					
	Mercury	14	270		48	mg/Kg
SSI-30-SW-N	Metals					
	Arsenic	20	20		23	mg/Kg
SSJ-0-B	Metals					
	Chromium	240	6100		740	mg/Kg
SSJ-210-SW-S	Metals					
	Arsenic	20	20		29	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 1

Sewer Post-Excavation Exceedances

Givaudan Roure Corporation

Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
SSJ-240-SW-N	<i>Metals</i>					
	Arsenic	20	20		29	mg/Kg
SSJ-30-SW-E	<i>Metals</i>					
	Chromium	240	6100		300	mg/Kg
SSJ-60-SW-N	<i>Metals</i>					
	Arsenic	20	20		23	mg/Kg
SSJ-90-SW-S	<i>Metals</i>					
	Antimony	14	340		30	mg/Kg
	Barium	700	47000		960	mg/Kg
	Chromium	240	6100		6800	mg/Kg
	Lead	400	600		7500	mg/Kg
	Mercury	14	270		33	mg/Kg
	Thallium	2	2		6.6	mg/Kg
SSM-0-B	<i>Metals</i>					
	Antimony	14	340		22	mg/Kg
	Arsenic	20	20		49	mg/Kg
SSM-120-SW-S	<i>Metals</i>					
	Antimony	14	340		21	mg/Kg
	Lead	400	600		1400	mg/Kg
SSM-150-SW-N	<i>Metals</i>					
	Chromium	240	6100		2200	mg/Kg
	Lead	400	600		1100	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J-1

Sewer Post-Excavation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDSCC	IGWSCC	Concentration	Units
SSM-180-SW-S	<i>Metals</i>					
	Lead	400	600		630	mg/Kg
SSM-200-B	<i>Metals</i>					
	Lead	400	600		1300	mg/Kg
SSM-250-B	<i>Metals</i>					
	Antimony	14	340		15	mg/Kg
	Arsenic	20	20		21	mg/Kg
	Lead	400	600		490	mg/Kg
SSM-300-B	<i>Metals</i>					
	Lead	400	600		1200	mg/Kg
	Mercury	14	270		16	mg/Kg
SSM-90-SW-N	<i>Metals</i>					
	Antimony	14	340		17	mg/Kg
	Lead	400	600		650	mg/Kg
SSN-7-SW-E	<i>Metals</i>					
	Lead	400	600		540	mg/Kg
SSP-210-SW-E	<i>Metals</i>					
	Arsenic	20	20		22	mg/Kg

*A concentration that exceeded both the RDCSCC and NRDSCC was reported by both labs and the higher of the two concentrations is shown.

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 2

Additional Excavation Findings Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	IGWSCC	Concentration	Units
30 Pit Bottom 01	<i>Metals</i>				
	Lead	400		1700	mg/Kg
	SVOCs				
	Benzo(a)anthracene	900	500000	2900	ug/Kg
	Benzo(a)pyrene	660	100000	3000	ug/Kg
	Benzo(b)fluoranthene	900	50000	3100	ug/Kg
	Benzo(k)fluoranthene	900	500000	2600	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	500000	910	ug/Kg
A-60-STONE-B	<i>Metals</i>				
	Antimony	14		15	mg/Kg
	Copper	600		53000	mg/Kg
	Lead	400		19000	mg/Kg
	Thallium	2		16	mg/Kg
	VOCs				
	1,2-Dichloroethane	6000	1000	4100 (D)	ug/Kg
	Benzene	3000	1000	27000 (D)	ug/Kg
	Chlorobenzene	37000	1000	1300000 (D)	ug/Kg
	cis-1,2-Dichloroethene	79000	1000	880000 (D)	ug/Kg
	Ethylbenzene	1000000	100000	140000 (D)	ug/Kg
	m,p-xylene	410000	67000	750000 (D)	ug/Kg
	o-xylene	410000	67000	160000 (D)	ug/Kg
	Tetrachloroethene	4000	1000	5200 (D)	ug/Kg
	Toluene	1000000	500000	2800000 (D)	ug/Kg
	Trichloroethene	23000	1000	5700000 (D)	ug/Kg
	Total VOCs			11805500*	ug/Kg
	Total Organics			11805500**	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 5-2
Additional Excavation Findings Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	IGWSCC	Concentration	Units
Blue-01	SVOCs				
	Diethylphthalate	10000000	50000	840000 (D)	ug/Kg
	N-Nitrosodiphenylamine	140000	100000	430000 (D)	ug/Kg
	Metals				
	Antimony	14		270	mg/Kg
	Chromium	240		360	mg/Kg
	Copper	600		4100	mg/Kg
	Lead	400		8700	mg/Kg
	Mercury	14		54	mg/Kg
	Thallium	2		8.7	mg/Kg
	SVOCs				
	Benzo(a)anthracene	900	500000	49000	ug/Kg
	Benzo(a)pyrene	660	100000	79000	ug/Kg
	Benzo(k)fluoranthene	900	500000	120000 (J)	ug/Kg
	Chrysene	9000	500000	40000	ug/Kg
	Dibenzo(a,h)anthracene	660	100000	14000	ug/Kg
	Fluoranthene	2300000	100000	140000 (J)	ug/Kg
	Indeno(1,2,3-cd)pyrene	900	500000	25000	ug/Kg
PIT-2-B	VOCs				
	Trichloroethene	23000	1000	1100	ug/Kg
Pit3-SW-S	VOCs				
	Trichloroethene	23000	1000	1300	ug/Kg
Pit4-B	VOCs				
	1,2-Dichloroethane	6000	1000	4100	ug/Kg
	Chlorobenzene	37000	1000	2800	ug/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 2
Additional Excavation Findings Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	IGWSCC	Concentration	Units
	cis-1,2-Dichloroethene	79000	1000	2100	ug/Kg
	Trichloroethene	23000	1000	96000	ug/Kg
Pit4-SW-E	VOCs				
	Trichloroethene	23000	1000	3200	ug/Kg
Pit4-SW-N	Metals				
	Arsenic	20		25	mg/Kg
	VOCs				
	Trichloroethene	23000	1000	1600	ug/Kg
Pit4-SW-S	VOCs				
	Trichloroethene	23000	1000	6100	ug/Kg
Pond-N-02	Metals				
	Arsenic	20		22	mg/Kg
Pond-SWE-01A	Metals				
	Arsenic	20		30	mg/Kg
	Chromium	240		870	mg/Kg
Pond-SW-E-4-02	Metals				
	Arsenic	20		22	mg/Kg
Pond-SW-N	Metals				
	Chromium	240		860	mg/Kg
	Copper	600		1100	mg/Kg
	Lead	400		1500	mg/Kg

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 3-2
Additional Excavation Findings Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	IGWSCC	Concentration	Units
	Mercury	14		23	mg/Kg
	Nickel	250		470	mg/Kg
	Thallium	2		3.6	mg/Kg
	SVOCs				
	Benzo(a)pyrene	660	100000	720 (D)	ug/Kg
	Benzo(k)fluoranthene	900	500000	2000 (D)	ug/Kg
Pond-SW-W-4-02	VOCs				
	Trichloroethene	23000	1000	2800	ug/Kg
Pond-Top-02	SVOCs				
	Benzo(a)anthracene	900	500000	970	ug/Kg
SEP-78-SW-N	Metals				
	Arsenic	20		26	mg/Kg

Notes:

* Health based criterion exceeds the 1,000,000 ug/kg maximum total for volatile organic contaminants.

** Health based criterion exceeds the 10,000,000 ug/kg maximum total for total organic contaminants.

Qualifiers:

D: Indicates the compound was analyzed at a secondary dilution.

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J
Supplemental Sewer Investigation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
C-710(2.5-3.0)	VOCs					
	Benzene	3,000	13,000	1,000	3,200	ug/kg
	Chlorobenzene	37,000	680,000	1,000	2,000	ug/kg
	Metals					
	Chromium	240	6,100		279	mg/kg
C'-30(2.5-3.0)	VOCs					
	Trichloroethene	23,000	54,000	1,000	3,300	ug/kg
C'-110(2.5-3.0)	SVOCs					
	Benzo(a)anthracene	900	4,000	500,000	990	ug/kg
	Benzo(b)fluoranthene	900	4,000	50,000	1,300	ug/kg
	Benzo(k)fluoranthene	900	4,000	500,000	1,000	ug/kg
	Benzo(a)pyrene	660	660	100,000	1,000	ug/kg
C'-135(3.0-3.5)	SVOCs					
	Benzo(a)anthracene	900	4,000	500,000	1,100	ug/kg
	Benzo(b)fluoranthene	900	4,000	50,000	1,300	ug/kg
	Benzo(k)fluoranthene	900	4,000	500,000	1,200	ug/kg
	Benzo(a)pyrene	660	660	100,000	990	ug/kg
C'''-20(2.5-3.0)	VOCs					
	Trichloroethene	23,000	54,000	1,000	1,200	ug/kg
	Metals					
	Vanadium	370	7,100		627	mg/kg
C''''-75(2.0-2.5)	SVOCs					
	Benzo(a)anthracene	900	4,000	500,000	4,100	ug/kg
	Benzo(b)fluoranthene	900	4,000	50,000	4,800	ug/kg
	Benzo(k)fluoranthene	900	4,000	500,000	3,800	ug/kg
	Benzo(a)pyrene	660	660	100,000	3,500	ug/kg
C''''-75(5.5-6.0)	SVOCs					
	Benzo(a)anthracene	900	4,000	500,000	1,200	ug/kg

Qualifiers:

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 3-3
Supplemental Sewer Investigation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
	Benzo(a)pyrene	660	660	100,000	870	ug/kg
	Indeno(1,2,3,-cd)pyrene	900	4,000	500,000	950	ug/kg
G'-118(4.5-5.0)	Metals					
	Arsenic	20	20		26	mg/kg
G'-78(2.5-3.0)	Metals					
	Arsenic	20	20		48.5	mg/kg
	Thallium	2	2		169	mg/kg
G'''-43(4.5-5.0)BD	Metals					
	Lead	400	600		425	mg/kg
G'''-43(8.0-8.5)	Metals					
	Lead	400	600		519	mg/kg
G'''-158(3.0-3.5)	VOCs					
	Trichloroethene	23,000	54,000	1,000	1,200	ug/kg
G'''-20(5.5-6.0)	SVOCs					
	Benzo(b)fluoranthene	900	4,000	50,000	960 (J)	ug/kg
G'''-400(3.5-4.0)	Metals					
	Chromium	240	6,100		515	mg/kg
G'''-300(2.0-2.5)	VOCs					
	Tetrachloroethene	4,000	6,000	1,000	3,000	ug/kg
G'''-300(5.5-6.0)	VOCs					
	Tetrachloroethene	4,000	6,000	1,000	7,200	ug/kg
H-10(6.5-7.0)	Metals					
	Chromium	240	6,100		264	mg/kg

Qualifiers:

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table J
Supplemental Sewer Investigation Exceedances
Givaudan Roure Corporation
Clifton, New Jersey

Sample ID	Constituents	RDCSCC	NRDCSCC	IGWSCC	Concentration	Units
H-90(7.0-7.5)	<i>Metals</i>					
	Arsenic	20	20		73.5	mg/kg
	Chromium	240	6,100		787	mg/kg
	Thallium	2	2		10	mg/kg
H-90(10.5-11.0)	<i>Metals</i>					
	Thallium	2	2		24.6	mg/kg

Qualifiers:

J: Indicates the concentration is less than Contract Required Quantitation Limit (CRQL) but greater than zero.

Table 5-4
Soil Management Summary
Givaudan Roure Corporation
Clifton, New Jersey

Designation	Date Excavated	Excavated Soil Origin Description	Re-use Sampling?	Re-use Sample Results	Final Status	Notes/Comments
8/11	8/11/98	OCS lines B, C, D	Yes	Fail	Sent off-site for recycling	
8/12	8/12/98	OCS lines B, C, D	Yes	Fail	Sent off-site for recycling	
8/14-C	8/14/98	OCS line C	Yes	Fail	Sent off-site for recycling	
8/17-C	8/17/98	OCS line C	Yes	Fail	Sent off-site for recycling	
8/18-C	8/18/98	OCS line C	Yes	Fail	Sent off-site for recycling	
8/19-DG	8/19/98	OCS lines D and G	Yes	Fail	Sent off-site for recycling	
8/20-G	8/20/98	OCS line C	Yes	Fail	Sent off-site for recycling	
8/25-B	8/25/98	OCS line B	Yes	Pass	Used for backfill	
OBF	9/2/98	Old building foundation	Yes	Fail	Sent off-site for recycling	
G'9/16	9/16/98	OCS line G'	Yes	Pass	Used for backfill	
E's 9/23	9/23/98	OCS line E	Yes	Fail	Sent off-site for recycling	
Rolloffs	8/15/98	OCS line C	Yes	Fail	Used for backfill	Treated on site
E''' 9/24	9/24/98	OCS line E'''	Yes	Pass	Used for backfill	
E' 9/28	9/28/98	OCS line E'	Yes	Fail	Sent off-site for recycling	
E's 9/29	9/29/98	OCS line E	Yes	Fail	Sent off-site for recycling	
E's 9/30	9/30/98	OCS line E	Yes	Fail	Sent off-site for recycling	
A 9/30	9/30/98	OCS line A	Yes	Fail	Sent off-site for recycling	
A 10/1	10/1/98	OCS line A	Yes	Pass	Used for backfill	
CBP 10/1	10/1/98	Catch basin pit on OCS line A	Yes	Fail	Sent off-site for recycling	
A 10/5	10/5/98	OCS line A	Yes	Fail	Sent off-site for recycling	
C 10/6	10/6/98	OCS line C	Yes	Fail	Sent off-site for recycling	
C 10/7	10/7/98	OCS line C	Yes	Fail	Sent off-site for recycling	
F' 10/12	10/12/98	OCS line F'	Yes	Fail	Sent off-site for recycling	
E 10/12	10/12/98	OCS line E	Yes	Pass	Used for backfill	

Table 5-4
Soil Management Summary
Givaudan Roure Corporation
Clifton, New Jersey

Designation	Date Excavated	Excavated Soil Origin Description	Re-use Sampling?	Re-use Sample Results	Final Status	Notes/Comments
E 10/13	10/13/98	OCS line E	Yes	Pass	Used for backfill	
G 10/14	10/14/98	OCS line G	Yes	Fail	Sent off-site for recycling	
G 10/15	10/15/98	OCS line G	Yes	Pass	Used for backfill	
EG 10/16	10/16/98	OCS lines E and G	Yes	Pass	Used for backfill	
F 10/12	10/19/98	OCS line F	Yes	Fail	Sent off-site for recycling	
F 10/20	10/20/98	OCS line F	Yes	Pass	Used for backfill	
G ^{'''} 10/21	10/21/98	OCS line G ^{'''}	Yes	Pass	Used for backfill	
C 10/26	10/26/98	OCS line C	Yes	Fail	Sent off-site for recycling	
C 10/27	10/27/98	OCS line C	Yes	Fail	Sent off-site for recycling	
A 10/28	10/28/98	OCS line A	Yes	Fail	Sent off-site for recycling	
Pit 10/28	10/28/98	Cesspool on OCS line A	Yes	Fail	Sent off-site for recycling	
C 10/29	10/29/98	OCS line C	Yes	Fail	Sent off-site for recycling	
AB 11/2	11/2/98	OCS lines A and B	Yes	Fail	Sent off-site for recycling	
Pit 2 11/3	11/3/98	Second Cesspool on OCS line A	Yes	Pass	Used for backfill	
G 1/6	1/6/99	Line G	Yes	Fail	Sent off-site for recycling	
SS 1/19	1/19/99	Storm sewer A	Yes	Fail	Sent off-site for recycling	
SS 1/20	1/20/99	Storm sewer C	Yes	Pass	Used for backfill	
SS 1/21	1/21/99	Storm sewer D	Yes	Fail	Sent off-site for recycling	
CBP 1/25	1/25/99	Catch basin pit on OCS line A	Yes	Fail	Sent off-site for recycling	Secondary excavation
SS 1/25	1/25/99	Storm sewer E	Yes	Fail	Sent off-site for recycling	
Pits 1/26	1/26/99	Cesspools on OCS line A	Yes	Fail	Sent off-site for recycling	
Pit 4 1/27	1/27/99	Cesspools on OCS line A	Yes	Fail	Sent off-site for recycling	
SSD 1/27	1/27/99	Storm sewer D	Yes	Pass	Used for backfill	
SSD 1/28	1/28/99	Storm sewer D	Yes	Fail	Sent off-site for recycling	

Table 5-4
Soil Management Summary
Givaudan Roure Corporation
Clifton, New Jersey

Designation	Date Excavated	Excavated Soil Origin Description	Re-use Sampling?	Re-use Sample Results	Final Status	Notes/Comments
SSB 1/28	1/28/99	Storm sewer B	Yes	Pass	Used for backfill	
SSF 2/1	2/1/99	Storm sewer F	Yes	Pass	Used for backfill	
SSD 2/1	2/1/99	Storm sewer D	Yes	Pass	Used for backfill	
SSG 2/1	2/1/99	Storm sewer G	Yes	Pass	Used for backfill	
SS 2/3	2/3/99	Storm sewers G and H	Yes	Pass	Used for backfill	
SS 2/4	2/4/99	Storm sewers I, J, K	Yes	Pass	Used for backfill	
SS 2/5	2/5/99	Storm sewers I, J, K	Yes	Fail	Sent off-site for recycling	
SSD 2/8	2/8/99	Storm sewer D	Yes	Fail	Sent off-site for recycling	
Pond 2/8	2/8/99	Former storm water retention pond	Yes	Fail	Sent off-site for recycling	
Pond top	2/8/99	Soil around top of pond	Yes	Fail	Sent off-site for recycling	
Pond 2/9	2/9/99	Former storm water retention pond	Yes	Pass	Used for backfill	
SS 2/15	2/15/99	Re-excavation on storm sewers H and D	Yes	Fail	Sent off-site for recycling	
SS 2/22	2/22/99	Storm sewer M	Yes	Fail	Sent off-site for recycling	
SS 2/23	2/23/99	Storm sewer M	Yes	Fail	Sent off-site for recycling	
SS 2/24	2/24/99	Storm sewers N and O	Yes	Fail	Sent off-site for recycling	
SS 2/25	2/25/99	Building foundation	Yes	Pass	Used for backfill	northeast of building 89
SSD 2/25	2/25/99	Storm sewer D	Yes	Fail	Sent off-site for recycling	
SS 3/1	3/1/99	Storm sewer P	Yes	Pass	Used for backfill	
SS 3/2	3/2/99	Storm sewer P	Yes	Fail	Sent off-site for recycling	
SS 3/10	3/10/99	Re-excavation from lines D, M, O, P, and R	Yes	Fail	Sent off-site for recycling	
SS 3/11	3/11/99	Storm sewer Z	Yes	Pass	Used for backfill	
4/6A	4/6/99	Misc. consolidated small piles	Yes	Fail	Sent off-site for recycling	
4/6B	4/6/99	Misc. consolidated small piles	Yes	Fail	Sent off-site for recycling	

Table 5-4
Soil Management Summary
Givaudan Roure Corporation
Clifton, New Jersey

Designation	Date Excavated	Excavated Soil Origin Description	Re-use Sampling?	Re-use Sample Results	Final Status	Notes/Comments
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Notes:

Pass: sample in which concentrations of VOCs, SVOCs, or Metals were less than the more stringent of their respective NJDEP RDCSCC/IGWSCC

Fail: sample in which concentrations of VOCs, SVOCs, or Metals exceeded the more stringent of their respective NJDEP RDCSCC/IGWSCC

VOCs: Volatile organic compounds

SVOCs: Semivolatile organic compounds

RDCSCC: Residential Direct Contact Soil Clean-up Criteria

IGWSCC: Impact to Ground Water Soil Clean-up Criteria

OCS: Old Chemical Sewer

Origin describes the sewer designation or location from which a given soil was excavated.

Soil that failed the unrestricted reuse criteria was staged, characterized for recycling and transported off-site.

Section 6

CONCLUSIONS

The remedial action objectives for the sewer decommissioning activities are presented below.

- Remove the old chemical, new chemical, and stormwater underground sewer lines, including any other encountered subsurface features identified to be historical potential source areas.
- Excavate and treat, or recycle soils impacted by the historical operation of the sewer systems.
- Backfill and compact the excavations appropriately in consideration of the future use of the property.

The remedial action performed has achieved these objectives by removing the sewers, additional subsurface features, and soil impacted by historical operations. A pilot study was implemented to evaluate treatment of excavated soils, however it was not successful.

In most cases, impacted soil was completely removed and existing concentrations of VOCs, SVOCs, and metals in soil are present at concentrations below the more stringent of the RDCSCC or the IGWSCC, or not detected. However, in some areas a decision to discontinue further excavation was made based on the field conditions.

In every instance, consideration was given to the excavated area with respect to concentrations of potentially related constituents in ground water (i.e., could the area be a residual source area for ground water impacts), sample depth, and planned future use of the property.

Provided below is a summary of the remedial action achievements from the sewer decommissioning activities.

- A total of 11,251 linear feet of old chemical, new chemical, and stormwater sewer was removed. The associated materials (piping, concrete, etc.) have been disposed of offsite, or reused onsite for backfill (if acceptable).
- Four cesspools discovered to be associated with the sewer line were removed.
- One underground storage tank uncovered during the sewer removal, and four underground storage tanks found under a demolished building were removed.

- Excavation and off-site recycling of 15,602 tons of soil impacted by VOCs, SVOCs, and Metals.
- Excavation and off-site recycling of 2,559 tons of asphalt.
- Excavation, crushing, characterization, and beneficial on-site reuse of 18,692 tons of concrete.
- The removal of approximately 135,000 gallons of water from the Pond prior to excavation and backfilling.
- The complete removal of impacted sediments from the bottom of the Pond that may have been contributing to localized ground water impacts.
- The partial removal of impacted soil adjacent to the northern portion of the Pond related to the former spent acid pit.
- The advancement of 65 soil borings to address sewers that were left in place due to accessibility problems during excavation activities.
- The emplacement of approximately 24,000 tons of certified clean fill to supplement site soil and concrete acceptable for reuse in backfilling.

In summary, the proactive sewer decommissioning and additional excavation activities completed by Givaudan Roure have successfully remediated a substantial portion of the property. Through the sewer decommissioning and plant demolition activities, impacted soil was identified and removed that would likely not have been discovered if the plant was still in operation.

Areas in which currently existing concentrations of organics exceed the IGWSCC are not considered to be of significant concern. In these areas, excavation was performed to the extent possible with considerable volumes of soil being removed. The reduction in overall mass of organics in soil should result in an observable decrease in concentrations of these organics in ground water. At a minimum, the excavation of these soil areas will serve to make any future ground water remediation (passive or active) more efficient and successful.

Based on the proposed non-residential use of the property, its not a significant concern that in certain areas organic or inorganic constituents are currently present at concentrations which exceed the RDCSCC or NRDCSCC. The planned redevelopment will cover the property with building slabs and asphalt parking lots. These features will minimize direct contact exposure, as well as limit infiltration, thus reducing the potential for leaching of constituents of concern. To insure awareness and

restrict the future usage of the property, a Deed Notice will be submitted by Givaudan Roure as a separate document to identify the remaining exceedances.

Section 7

Carswell, L.D. and J.G. Rooney. June 1976. *Summary of Geology and Ground Water Resources of Passaic County, New Jersey*. U.S.G.S. Water Resources Investigations 76-75. U.S. Department of the Interior, Geological Survey.

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King, Philip B. 1977. Appalachian and Related Systems. *The Evolution of North America*. Princeton, NJ: Princeton University Press.

Michalski, Andrew. 1990. Hydrogeology of the Brunswick (Passaic) Formation and Implications for Ground Water Monitoring Practice. *Ground Water Monitoring Review*, Fall 1990: 134-143.

Nichols, William D. 1968. Ground Water Resources of Essex County, New Jersey. *Special Report No. 28*. U.S. Geological Survey in Cooperation with the State of New Jersey. Prepared for: State of New Jersey, Department of Conservation and Economic Development, Division of Water Supply.

NJDEP. 1992. *Field Sampling Procedures Manual*.

Vecchioli, J., L.D. Carswell, and H.F. Kasabach. 1969. Occurrence and Movement of Ground Water in the Brunswick Shale at a Site Near Trenton, New Jersey. U.S. Geological Survey, Professional Paper 650-R.

Section 8

CERTIFICATIONS

**Remedial Action Report (RAR)
for Sewer Decommissioning
Givaudan Roure Corporation
125 Delawanna Avenue Facility
Clifton, Passaic County, New Jersey
January 1999**

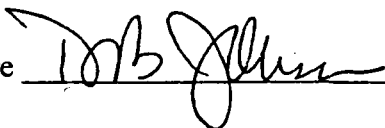
The following certification shall be signed by the highest ranking individual with overall responsibility for implementing the remediation of a site.

"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

Typed/Printed Name David B. Johnson

Title Sr. Vice President,
Head of Operations - North America

Signature



Date January 14, 2000

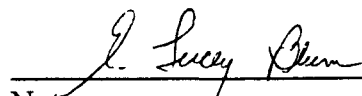
Company Givaudan Roure Corporation

Sworn to and Subscribed Before Me

on this 14th

Date of January 19 2000

Notary



**E. LUCEY BLUM
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES MAY 13, 2000**

The following certification shall be signed as follows:

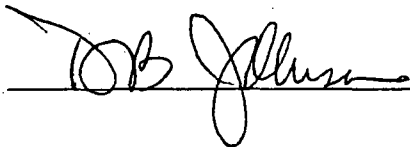
- a. For a corporation, by a principal executive officer of at least the level of vice president.
- b. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- c. For a municipality, State, Federal or other public agency, by either a principal executive officer or ranking elected official.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

Typed/Printed Name David B. Johnson

Title Sr. Vice President,
Head of Operations -North America

Signature



Date January 14, 2000

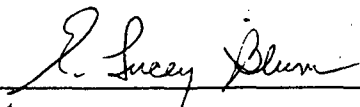
Company Givaudan Roure Corporation

Sworn to and Subscribed Before Me

on this _____

Date of 14th January 19 2000

Notary



E. LUCEY BLUM
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES MAY 13, 2000